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Custom-Built Projective Methods: A Symposium[1]
Introduction

BERTRAM R. FORER
Los Angeles, California

It has been some time since the Rorschach and the TAT defined the limits and content of projective techniques. Diagnostic clinical psychology is no longer the technology of a few instruments of general applicability. It has broadened its scope not only in the direction of adding specific tests to its repertoire, but also toward the establishment of a metapsychology of personality evaluation based upon cognitive cues: perception, thinking, and fantasy. And this metapsychology transcends both specific tests and specific theories of personality.

Looking backward, we can now see some of the limitations of the projective instruments of which we expected so much. And we should be less surprised and discomfited by these limitations.

In the earlier phases of our enthusiasm about the new approach to assessing personality, we expected one or two standard instruments to provide the basis for a total description of personality. Later we required that such instruments enable us to predict a variety of behavioral specificities for which the tests were not originally designed. And we had little conception of the personality correlates of the criterion behavior and even less of the way in which such personality correlates might be revealed in test data.

We assumed that unconscious psychodynamics revealed in our test protocols were correlated with, hence predictive of, behavior as if there were an isomorphic relationship between the test and the social world. We sought evidence of traits and impulses as if we believed that their derivatives in fantasy and in perceptual organization in themselves were predictive cues. We have learned, however, that evidence of the magnitude of drives and traits does not necessarily relate directly to social behavior. There are other psychological determinants, emphasized in ego psychology, which may alter considerably our expectations of how and why and to what degree any psychological force will be expressed overtly.

As in the domain of psychotherapy we find at least two views of psychological organziation. One view describes personality as a more or less self-contained system, following its own laws of change and interaction with the environment. In this view endogenous processes are described in their own terms and behavior is accounted for largely as an expression of the internal organization. The other view envisages personality in terms of shifting patterns of interaction or transaction with the environment. In the former view projective techniques are used to describe an essentially structured pattern of intrapsychic relationships: the personality description or psychodynamic report. The latter view, emphasizing interaction with the environments, less clearly defines its goal of assessment. Most commonly it involves describing behavior in terms of specified stimulus situations, psychological tests or social situations.

If we describe personality as an endogenous thing, which we understand by measuring all of its functions, structures and internal relationships, our method must be comprehensive and measure everything of importance, assuming that we know what is important. And there may always be something else that we have not yet

[1]Presented jointly by the Society for Projective Techniques and A.P.A. Division 12, Sept. 1, 1960, Chicago, Ill.

measured which may make a good deal of difference.

If we choose to describe people in terms of their interaction with the environment and wish to predict overt situational events, we need to work out dimensions by which we can describe such interactions. We also need to understand a good deal more than we do about the relationships between reaction to external environmental stimuli and stimuli from within the organism, and the relative roles of external stimuli and endogenous structure and functions in governing behavior.

Whichever approach to personality may best suit our purposes or our own biases, we are continually faced with questions such as the following ones.

1. How are the stable, enduring aspects of personality related to specific test behavior? What relationships exist between test stimuli and the psychological function or structure that mediates a response?

2. What are the relationships between test stimuli and social stimuli? To what extent can we predict a social response from responses to a particular projective test? Can we ever hope to relate these two aspects of the psyche by means of standard tests?

3. What is the role of stimulus structure in enabling us to describe internal structure and predict overt behavior?

4. How representative of the total personality is the response to any particular test?

5. How important is the degree of stability of response to specific test stimuli?

We have seen a frenetic extension of application of conventional projective methods into areas far from their original purpose of describing endogenous psychological processes and structures. Tests are now used for a variety of overt behavioral predictions, for testing hypotheses about personality in general, for assessing personality change and planning psychotherapy, for vocational counseling, industrial selection, evaluating the psychological impact of experiences, for comparative studies of myriad kinds of groups.

As a result of the burgeoning demands that have been put upon projective methods, limitations of particular tests have been found and misused. Some findings have been used brashly to damn projective methods in toto. Other limitations have been emotionally denied or rationalized away. The most mature reaction has been to reevaluate the functions and limitations of the tests in terms of immediate research or diagnostic requirements. But this resolution, also, can have its deficiencies. During the past few years we have been deluged by the inventiveness of experimental and clinical psychologists who have attacked problems through the creation of new test stimuli. Some of these tests are ingenious and some trivial. To be sure, inventiveness is a precious commodity, but it requires meaningful utilization.

Our symposium is oriented toward clarifying some of the problems involved in custom-building projective techniques for the solution of concrete psychological problems, whether clinical or experimental. Some of the not-so-easily answered questions are these:

1. What problems of validity and reliability arise from the custom-building of a projective test for a one-shot investigation of a particular research problem? How important is standardization? How does such an experiment differ from one making use of new apparatus or a performance task?

2. What kinds of test stimuli are likely to elicit what kinds of information?

3. How much structure or ambiguity should be built into test stimuli to elicit the kind of information required for specific research or clinical task?

4. What are the considerations and limitations of projective-clinical in-

terpretation of responses to new test stimuli? Are there any rules of transformation from known and standard techniques to new ones?

It is too much to expect that our panel members can answer all of these questions. Perhaps they can give us a few fresh ideas.

Devising Projective Methods for Personality Research

A. I. Rabin
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The two major time-honored projective methods – the TAT and the Rorschach – have been devised in an effort to assess the "total personality." Murray's catalog of "needs" and "press," Rorschach's original interpretive scheme involving affect, imagination, perception of reality, etc., as well as the subsequent developments in psychoanalytic interpretation of the test (Schafer, 1954), support the contention that an all-inclusive personality portrayal is endeavored. This descriptive idiographic approach in the clinical setting is amply justified. However, when research workers are concerned with answers to specific theoretical questions or with the exploration and elucidation of specific personality variables, involving the nomothetic approach, the traditional techniques have been found wanting. They had to cast about for methods, although based on the projective hypothesis, that are particularly suited to the problems with which they were concerned.

Thus, Franck and Rosen (1949) whose major concern was the study of masculinity-femininity felt that "Frequently the Rorschach and TAT are used to fathom such underlying trends. But, quantification is difficult, the information available is incidental to other purposes and is often absent in short records" (p. 247). Consequently, they devised their own "projective test of masculinity-femininity" which attempts to address itself exclusively to this trait and measure it along a continuum between extreme polarities.

Another example of the same trend is represented in Blum's (1949) introduction of the Blacky Pictures. The author was concerned with the experimental investigation of Freud's theory of psychosexual development and for obvious reasons felt that projective methods would be most suitable for such an investigation. However, Blum states:

> Once limited to the field of projective testing, the task then centered upon which instrument to use for the purposes of the experiment. The two more or less standard projective techniques in current clinical practice are the Rorschach Test and the Thematic Apperception Test. Personality interpretations based upon a subject's performance on these tests are frequently psychoanalytically oriented. There are numerous test clues which can be fitted into the psychoanalytic context. But such interpretations are largely indirect and involve a great many inferences from the data. Therefore, it was felt that a new approach, utilizing advantages of the projective methods while at the same time related more directly to psychoanalytic theory might be more fruitful (p. 13).

Many more instances could be cited in which similar reasons are given for devising new projective methods in the study of specific personality problems. In some studies the new device is chiefly a modification or adaptation o older ones, such as in Davids' (1955) investigation of the Alienation syndrome; in others, new stimuli or new situations are introduced, as illustrated by the tests we just cited. Whether the new method, utilizing the projective hypothesis, is entirely original or whether it is a modification and an adaptation of a method previously available, it is important to examine the causes of its greater efficiency and superiority over the more popular and conventional methods in use. As a matter of fact, highly successful efforts to test specific hypotheses by means of the Rorschach and TAT have been reported. Aronson's (1952) "Study of Freudian theory by means of the Rorschach test" and the experiments reported by McClelland, Atkinson, Clark and Lowell (1953) based on some of the TAT cards may

serve as illustrations. In these situations the investigators are not concerned with the "total personality" and therefore deal selectively with those aspects of the responses which are more directly relevant to the problem under examination. Special indices, content, test variables and scoring methods are employed. These are more directly pointed at the personality characteristic or theoretical relationship under the investigator's scrutiny.

Thus, we may discern three major trends in personality research which employs devices based on the projective hypothesis:

1. The utilization of conventional techniques, i.e., stimuli consisting of available projective methods accompanied by a delimitation of the amount of obtained information used for the purposes of the specific problem under consideration. This circumscribed use of response material is related to the predictions made, such as in Aronson's (1952) study, mentioned above, or in the study by Vernier, Whiting and Meltzer (1955) which reports an interesting attempt at "prediction of specific behavior." Relevant indices, test variables, etc., are stated beforehand as predictors.

2. The modification of older methods by injecting or introducing new content or by modifying the stimulus material in the hope of evoking responses relevant to the hypothesis being tested. Davids (1955), for example, utilized the tautophone principle and the sentence completion method; however, the phrases and the stems (i.e., stimuli) were so designed as to elicit responses directly relevant to his variables of egocentricity, anxiety, distrust, etc. The inclusion of non-TAT cards by McClelland, *et al.* (1953) in their study of the achievement motive is a similar operation. Here we have an acceptance of the over-all principle and modality of a technique, but also the actual modification of the specific "sets" as represented by the stimulus material.

3. The devising of new and original stimuli, for the projective test situation, designed to elicit responses which have a direct bearing upon the hypothesis stated. The Blacky (Blum, 1949) consists of a series of animal pictures, each of which is designed to produce some information regarding a specific psychosexual dimension. In this instance the novelty of the set of stimuli is accompanied by novelty in principle as well. Unlike the TAT, the projection involves identification with animals rather than with human "heroes."

Thus, to summarize the three types of projective method employed in personality research; there are differences in stimulus, principle of projection and response material used. In the first instance, no modifications in stimulus and principle take place; only limits are placed on the amount of information related to the hypothesis.

In the second instance, the principle remains the same, but the stimuli are modified and to some extent custom-made. No special limitations are made on the response material for the design includes its processing and utilization.

Finally, the completely new custom-made projective method represents innovation both in stimulus and principle. Again, here as in the previous instance, the response material is not delimited, but entirely used in the service of the hypotheses and prediction.

It is not sufficient to propose an analysis of factors involved in the application of special projective techniques to personality research. Nor is it enough to delineate the more general characteristics of methods devised for specific research projects. We now must penetrate a bit further below the surface of our classification and evolve some principles which are the core of custom-made projective techniques or which underlie the "more direct" approach to specific variables, predictions, theories or hypothesis-testing.

Franck and Rosen (1949) preferred

to devise a special technique for the study of masculinity-femininity because the use of the more global methods (Rorschach, TAT) makes quantification difficult and "the information available is incidental to other purposes." They wanted a direct focus on masculinity-femininity. Blum (1949) who was concerned with a major aspect of psychoanalytic theory felt that a new approach was necessary. The characteristics of such an approach was its more direct relationship to psychoanalytic theory which would not involve indirect interpretations and numerous inferences based on a variety of test clues. It may be stated that these investigators preferred to shoot at the target with a rifle than to use the shotgun approach.

However, what is involved in the "more direct" approach which minimizes inferences and indirect interpretations? We must deal first with the nature of the stimulus in the projective situation; then, with the response material it elicits; and, finally, with their relationship to the personality variable, characteristic or theory under study.

In attempting to predict behavior of TB patients (Leaving the Hospital Against Medical Advice vs. Maximum Hospital Benefit) Vernier *et al* (1955) administered three projective techniques – the Rorschach, TAT and HTP. The most effective item in the total battery turned out to be the "House" drawing. The authors generalize from this finding that the "major implication . . . for projective methods would appear to be a confirmation of the importance of analysis of interaction between person and situation for accurate behavioral prediction . . . it is essential that the tests, while ambiguous, present stimuli which tap the specific situation or area in which the behavior to be predicted occurs" (pp. 181-182). Similarly, Sigel (1960) in his recent discussion on the "application of projective techniques to research with children" makes a plea for "situationally relevant content in projective tests." More specifically he suggests that "A fruitful approach in resolving some of the problems . . . is the use of stimuli depicting particular situations relevant to the variable under study . . . unless the content of the projective and the variable measured have some specific relationship accurate predictions are difficult to make" (p. 356). In the same vein Kagan (1960) decries the ". . . decreased concern both with the nature of the stimulus input and the cognitive process associated with the verbalized fantasy response" (p. 106), in his discussion of thematic apperceptive techniques with children.

It appears that the specific relationship of the stimulus to the anticipated behavioral prediction or the investigated variable is a necessary condition for projective methods in personality research. However, we must ask ourselves – what are the ingredients or the elements constituting such a relationship?

On the one extreme we can speak of such a close relationship or similarity between the stimulus and the referent that we have identity. A direct question would be such a stimulus, but could no longer be classified as a projective technique. Allport (1950) feels, and he has a good deal support for his position, that "normal subjects . . . tell you by the direct method precisely what they tell you by the projective method." However, our repeated experiences in clinical and research situations do not substantiate this statement. The study by Davids and Pildner (1958) comparing direct and projective methods under different conditions of motivation clearly shows the deceptive and defensive operations reflected in the direct methods.

We must, therefore, have similarity of stimulus to the variable investigated, but not identity. Hence, the move has to be in the direction of ambiguity. But the range of ambiguity is quite large. What would be the optimum along this dimension?

If we were to place the Rorschach at the other pole of the directness-indirectness or ambiguity-clarity continuum, we find that it too has been rejected in studies of specific variables. The Rorschach gives us much information — structural as well as contentual, but it deals with a finite number of variables, i.e. accuracy of perception, mode of perception, etc., which are directly related to the stimuli themselves. However, when we come to more general variables (such as empathy) or to an array of specific predictions of behavior (e.g. reaction to frustration) the interpretations we make are based on many inferences and intermediate hypotheses concerning the quantity, quality and interrelationships between the multitude of test factors. Different interpreters may select different factors for placement in the interpretive jackpot, because there is little in the nature of the stimulus and, consequently, of the corresponding responses, which deals directly with "empathy" or "reaction to frustration."

It must be mentioned parenthetically that the ambiguity-clarity (or explicitness) polarity, as represented in the examples given above, is not absolute. The direct item of a questionnaire is open to different semantic interpretations by the subject and therefore partakes of ambiguity. The Rorschach card, on the other hand, involves a degree of clarity or explicitness as reflected in popular responses and in over-all meaning of cards as recently demonstrated in a semantic differential analysis of these stimuli (Rabin, 1959).

Despite the imperfections in this dichotomy we may now assay a statement of the desirable characteristics of a custom-made projective method. From the point of view of the stimulus it is necessary that it not be identical (OSS-type of task) with the variable or prediction in order to minimize defensiveness and evasion and yet be related to the variable. In other words, the stimulus should present some elements which it has in common with the situation or characteristic concerning which prediction is desirable. These common elements trigger off a wide range of association chains, ranging from secondary to primary process, in relation to the topic under study. They allow us to break into the associational network emanating from the particular topic and give us direct clues to the intensity and extensity related to its significance for the individual.

As far as the responses are concerned, it must be realized that they are not entirely dependent on the stimulus, but on the degree of sophistication and insight of the responder. The response depends so much on what the subject thinks he is giving the examiner and on the distortions he needs to introduce in his responses. Expansion of this topic and further reiteration of the well known examiner-examinee interaction process at this juncture will take us beyond the confines of a brief paper.

Finally, after discussing the characteristics of custom-made projective tests, i.e.—stimuli, the question arises, how does one devise them, obtain them or invent them? Here we come to depend upon the creativity, ingenuity and inventiveness of the author of a new projective method. He has to draw on his own "apperceptive mass" or, as Colby (1958) puts it, on the "central psychic activity whose operations are inaccessible to consciousness" in order to make that "creative leap."

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"Custom-Made or Store-Bought Projective Techniques" What Do They Represent?

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In selecting what projective technique responses might "represent," my indebtedness to one of my teachers and idols, Dr. Egon Brunswik will be manifest. Dr. Brunswik stressed the need for complexity, objectivity, and representativeness in many of his writings. In this paper, (a) there will be an attempt to deal with the lack of representativeness in some of the assessment studies; (b) then to indicate the nature of the unit in projective techniques and (c) the implicit assumptions we rely on in building interpretations and custom-made additions to the projective-test library; (d) problems of constancy vs. variability, and (e) finally, the problem of levels in projective devices. It is obvious that in this symposium one can hardly do justice to the tremendous literature and will of necessity merely touch upon many of the critical issues facing the alert, research-minded clinician who used the custom-made and conventional projective techniques.

A. *Representativeness in Assessment Studies:*

One of the cardinal roots for much of the creative additions to our projective tests rests in the psychoanalytic, psychodynamic cornerstone of psychic determinism. In the first major assessment project led by H. A. Murray, the custom-made tradition began, which attempted to plumb the depths and explore the surface of a person in order to cover the total "personality."

However, even before the Harvard study in 1938, assessment of academic success existed and was rooted in estimation of intelligence. As long as "g", a unitary factor, could predict future performance reasonably well from an index of capacity in the cognitive sphere, reliance on such approaches justifiably grew.

In such a situation the early success of prediction was impressive, for the criterion of future school performance and one's pencil test performance were quite similar. The "representativeness" of the reality demands in the test material sample accounted for a good deal of the variance involved in making "g" a clear-cut, straightforward link to predicting future behavior. However, even here non-intellective factors began to loom larger on the horizon as personality-clinical developments stressed the under-achiever and the emotionally blocked in school performance.

In two subsequent assessment studies, that of the O.S.S. (1948) and the Kelly and Fisk (1951) study of graduate students in clinical psychology, success in prediction was much poorer. In the O.S.S. study, the barrage of expert judges proved disappointing and found their ability to evaluate the "total experience" almost impossible. The criterion towards which they were aiming was a situation they knew almost nothing about. There was no awareness of the particular stresses and the particular environmental variables that these men they were to evaluate would be placed in. Confronted with this task they fell back on constructs that again assumed a pervasive psychic determinism in which the ability to stand stress was considered from the point of view of such concepts as "frustration tolerance," "ego strength" and the like. The human's ability to withstand various pressures is not independent of the nature of the stress, the situation in which such stress is administered, or the condition of the individual at such a particular time.

Hence, it is clear that the global prediction here of strength, adjustment capacity, or whatever, was without representation for any real live situation like the one they would face if sent, for example, to do espionage work in a hostile environment.

In the Kelly and Fiske study (1951), the Miller Analogies test and the Strong Vocational Interest battery were the best predictors of future success as rated by supervisors in clinical psychology. The notable lack of success of this project is indicated by the fact that the highest correlations with the criterion accounted for no more than 16% of the variance. McNemar, (1952) in a review of the study, concluded that perhaps psychologists have oversold themselves in certain areas, if this was the best judging they could do. The raters were finally given the less complex rating task of considering only three variables: academic performance, research competence, and clinical competence again without success. The differences among average ratings for different installations was significant at the 1% level indicating that these three terms meant different things to different groups of raters when applied to the V.A. trainees being rated. This highlights the often overlooked fact that if one fails to predict future performance, it is not necessarily the test that is invalid, but that it could also be the fallible criterion or the biased judges. This brings us back to the haunting questions of what constructs projective tests could represent, what kind of unit should we expect if it is to represent the personality—as defined by the user of projective techniques—and what are projective techniques representative of? Questions that are far more readily raised than answered.

B. *The Unit:*

If projective test responses and the person's world inferred from his responses are isomorphic in some formulative sense, we would expect a sample of the person's behavior in the test situation to be highly correlated with the person's mode of responding to other aspects of his world.

In Figure A, I have tried to indicate the unit as a lens-model similar to Dr. Egon Brunswick's lens model. The unit is obviously quite a large one with little hope of independence among the different nodal points of the unit. The interaction of tester and test material, of patient and test, and of patient and test-clinician have been indicated by research findings in the literature. For purposes of lucidity and visual simplicity the idea of one clinician rather than several is shown thereby removing the possibility of checking the representativeness of clinicians in relation to Point B. Returning to the Total Unit, we could enlarge the situation B into B_1, B_2, etc., which would give us something like the Michigan Study where the data available exceed the clinician's degree of motivation or effective digestive capacities. Usually the interaction of B and C, i.e., clinician and test situation, are not separated, and one assumes that the judgment D is a function of B, or some single cues in B. The McFarlane and Tuddenham suggestion for micro-studies of color, form, etc., as correlated with E will necessarily leave out certain parts of information that contribute in a constant error sense (CE), thus lowering the level of correlation expected.

Let us assume as unimportant the immediate environmental surroundings and the cultural-social forces that lower our predictive expectations. In C—the clinician—we also have to consider the role of the theoretical system of constructs that cause him to focus on some variables and eliminate those deemed not relevant according to such a frame of reference. Obviously the dimensions chosen for any particular study would be a function of the test variables in common use and the theoretical frame of reference employed, etc. For example, one might look at the Rorschach from the point of view of primary process thinking

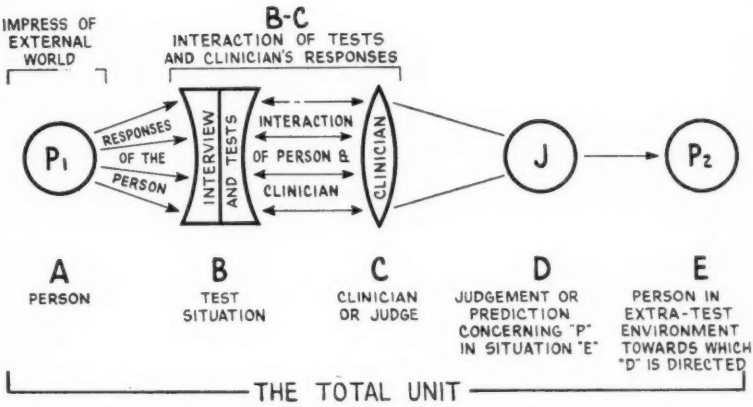

FIGURE A

A. is the person as he arrives at testing affected by the external world and present presses he brings to treatment.

B. is the test and interview situation through which he responds. The lens is depicted as concave to illustrate the broad range of responses of verbal and non-verbal variety emitted in the test situation.

C. is the clinician who responds to and interacts with the test material and the patient in the test situation. The convex lens demonstrates the focussing activity of the clinician who utilizes some of the obtained cues or materials and discards others.

D. represents the focus of the clinician offered in some report, decision or verbalization about the patient as seen in situation B at time of testing.

E. the judgment usually refers to, or assumes something about $P_{1\text{-}2}$ or about an extra-test situation which is inferred from the interaction of A and C through B.

R_{bc} would be correlation between the cues obtained in the test or interview and behavior in P_2 situation—which is referred to as empirical validity of behavior in tests as predictive of extra-test behavior.

R_{de} would refer to judgmental validity, i.e., the correlation between the judgment of clinician and extra-test performance predicted. The "accuracy" of the judge would be the correlation between these two correlation coefficients.

(Note: —for purposes of comprehension the single situation P_2 rather than a number of situations has been included. This multi-situational vs. single situational model would highlight the enduring vs. the transient aspects of the person.)

vs. secondary process thinking, of ego-defenses, impulse-drive balance, M:C ratio, of interpersonal relations, verbal clues to intelligence, character structure, or for problem areas in the personality. The richness of projective techniques is also the reason why it is difficult to assign invalidity to the test rather than to the operations and dimensions utilized in the particular research attempt. Cronbach (1955) used the analogy of information theory to indicate that band width and response fidelity are mutually exclusive demands one can make on a communication system. The wider the band of information you obtain, the higher the noise level and the lower the fidelity. On the other hand, the narrower the band width, the higher the accuracy and fidelity expected. If we seek information about many facets in varying amounts, the Rorschach certainly has few equals. The pure dimensions of Cattell (factorially so, at any rate) are indicative of some narrower segment of the total range having greater precision of measurement than the projective techniques. To validate such a broad

band, theories and constructs are forged to accomplish the task of person-evaluation. Construct validity is one approach "when the tester has no definite criterion measure of the quality with which he is concerned and must use indirect measures. Here, the trait or quality underlying the test is of central importance." Cronbach and Meehl (1952) and Loevinger and Meehl (1957) have recently stressed the need for support from varied sources for such validation (Cronbach, 1955) and people like Shneidman (1959) conclude that until our theoretical structure is factually sound no construct validation of projective test theory is possible. In their original article on Construct Validity, Cronbach and Meehl (1952) spoke of the need for a nomological network of theory where one tackled now one part and now another of the theoretical structure to attempt to validate it. What emerges from this crude example of a model indicated here would suggest that the links between the different segments and the interactional effects of all such points on the rest of the chain would be the encompassing unit. At least this would be our ultimate goal if there is to be a total understanding of the behavioral unit we often fractionate. The price we pay for the fractional view is a lowering of correlations and an increase in the "error" variance to the point where we feel less than secure despite an ocean of conflicting research findings. What Brunswik called Classical Design where one can hold all variables save one constant has little relevance in projective technique research if this lens model correctly approximates the unit involved. For most people with limited amounts of energy and time, the task appears, and probably is, too formidable. However, if we are merely to accept the test as effective for indicating executive ability, or future psychiatric performance without considering the links in the chain, custom-made efforts are likely to prove sterile. One might readily "invent" a drawing test of policemen and crooks for delinquents, drawing of a nude couple for the sexually troubled, and drawing of the family for the young man having trouble at home, etc. Such things are being done. I would argue that each point of the lens model bears special investigation and proliferative additions just mentioned take little cognizance of the extant complexity. In the rest of the clinical world, instruments are not broadly applied before there is controlled evidence for effectiveness and for misleading dangers. One cannot get a representative sample of just one point and ignore all other nodal points and generalize as though these points have been considered.

An additional problem in the area of unit size is made up of clinical judgment itself, which has been, for purposes of simplifying the exposition, considered another Skinnerian empty black box. The judgment of the clinician appears to be a process whereby the clinician finds many different clues accumulating evidence for a final inference. Each of these cues is weighted in some crude fashion, making a certain inference more or less probable in the final judgment. At the same time, if there is the odd, single instance of a very gross sort, the cards are thrown in, so to speak, and is significant for the clinical diagnosis made. So that a single response on Card II of "blood oozing from a syphilitic vagina" gives the clinician his final diagnosis. None of these single cues is itself of a high level of probability, but by an inner additive kind of weighting based on frequency and intensity of the cues observed the clinical judgment is reached. If one tries to predict anxiety based on shading, as seen in c responses on the Rorschach, it again does not represent the end result that it is supposed to test. In addition, the interaction between the person and the examiner, between the set of the subject, and the stimulus pull, highlight the need for considering the in-

teractional effects among these variables in any research design aimed at evaluating a projective test. Now, let us look at some of the implicit assumptions underlying our interpretive role.

C. *Implicit Assumptions:*

Explicit statements of our assumptions in evaluating projective material are few. Gardner Lindzey (1952) stated some of the critical assumptions made for most projective technique interpretations. (1) We assume that the person completing an incomplete, or unstructured task, is revealing of the individual's own strivings, dispositions and conflicts. In our model, the relative contribution of the subject is only part of the total stimulus-response situation. It is incumbent on us to borrow S. S. Stevens' phrase (1951) to "define the stimulus" as well as the response part that comes from the uniqueness of the person. Similarly, the present writer has used the M.A.P.S. material where the picture was varied as to background and the figures to evaluate the contribution of the physical stimulus to the stories. (2) Another implicit assumption is that recurrent themes or perseverative trends are particularly apt to mirror the impulses and affects of the story-teller or person being tested. Here, we overlap with the realm of test-retest reliability of themes, responses, etc., which is covered in a later section on stability and variability of responses. Suffice it to say that many perseverative actions can be aimed at hiding or disguising genuine conflicts or impulses, as well. Saliency is not necessarily equivalent to frequency of elicitation. (3) The assumption that greater unstructuredness elicits more unconscious and dynamic material. Schafer has asserted (1958) that where the poor, fluid or concretistic response occurs in the Wechsler-Bellevue, he finds the other tests going along with the schizophrenic diagnosis. But where the projective material shows signs of a thought disorder, it occasionally indicates "regression in the service of the ego" or a kind of mild loosening of less severe pathognomonic import. Here, too, the evidence is conflictual rather than clear. The level of communication and meaning will be discussed subsequently. (4) An important question concerning the centrality of conflicts found must be raised, too. Can stories or Rorschach responses reflect momentary dispositions as well as enduring characteristics of the personality? The Holt and Luborsky attempt to rate psychiatric residents on the basis of their projective test responses indicated that often these people gave very "sick" test responses, which could (to my mind) represent the attempts by resident-applicants to impress the psychologists with their ability to regress, or give "free" responses indicating self-insight, or whatever they felt would aid their application. Sanford (1936) and Murray (1938) have also indicated that food hunger or detective stories preceding a projective test lead to a marked emphasis in the food content or the malevolent figures seen. Our current evidence would suggest that tests are responsive to both situational and enduring aspects of the personality. It is accepted by most that fantasy and projective material are far from perfectly correlated with overt behavior (Little, 1959). (5) An important assumption is often made that projective material gets at unconscious material that cannot be obtained through other more direct methods such as the anamnesis, questionnaire, direct interview, etc. Little and Shneidman (1959) found greater congruency among clinicians about diagnosis from anamnestic data for psychosis than from test judges. One must consider the task that is required of the clinician. If he were required to predict what he has little knowledge of, his techniques would be irrelevant. Similarly, some aspects of test responses are common to all verbal communications, all interpersonal communications, hence not distinctive for the test situation. It is because of just

such implicit assumptions largely, rooted in psychoanalytic theory and its cornerstone of psychic determinism, that we present a person with tests bearing some face validity in the area sought. Our answers are not uncontaminated by all of the variables stemming from performance, etc., and there is little basis for a one-to-one correspondence between the obtained response, depth, and centrality of conflict in the person, implicit in our creation of such custom-built devices.

D. *Levels and Personality Structure:*

The question of what level projective tests represents is as yet an open question. Forer (1960) differentiated the problem of predicting behavioral specifics from predicting intrapsychic systems by the terms intrinsic vs. extrinsic prediction. Where one has to predict across tests that are all measuring depth hypothetically, there is little correspondence between tests for such common interpretations of the personality. The argument then runs that congruence among levels should not be expected, since they are of different intensity, form, level of threshold for behavior. It is quite common for the clinician to assume that any contradictory material found refers to material from different levels. An example would be that of a person showing great strength and independence in his TAT heroes, and having a Rorschach filled with oral responses. The clinician would conclude that while there is a hyper-masculine independent facade, there are underlying intense oral needs which the patient tends to deny. There are times when we know that it is possible to utilize these different levels to predict outer behavior more accurately. E. F. Brunswik (1942), for example, had her children rated according to their assumed motivation rather than their outer behavior. She found that perception in depth was not inferior to surface perception, but that there were more alternative manifestations of an underlying drive. In one instance, overt behavioral ratings on exuberance and irritability were found to correlate negatively with each other (-.52). But both of these correlated with the drive for aggression so that a multiple correlation between either exuberance or irritability and aggression had an r of plus .73, while the individual r's with aggression were .30 and .41. So that adolescents were found to show clusters of outer behavior with a strong aggressive drive, and not the single behavior interpretable from an underlying drive. This illustrates one of the stumbling blocks to one trying the direct translation across levels in an effort to obtain external prediction.

Attempts to obtain something that would integrate a variety of separate aspects of the personality in depth have led to a marked trend for the larger unit. Cattell's source traits, G. S. Klein's (1958) perceptual attitudes, and Schafer (1958) in stressing the formal, structural characteristics, indicate this felt need for understanding the inner forces that motivate and direct behavior that might prove more stable and less elusive. Recently Leary has developed an empirical multi-level conception of personality evaluation based on TAT stories and material. This system seems to me to deal much more with preconscious rather than unconscious levels. The links from depth to surface and to the outside world are as yet not forged; and many factor-analytic studies of projective batteries show little correlation among the tests themselves. Stone and Dellis (1960) note that pseudo-neurotic schizophrenics show good reality contact and little overt sign of the underlying psychosis which appears clearly on projective tests. (Dr. Sharma and I had psychiatrists rate 52 symptoms collected in the literature differentiating the pseudo-neurotic, latent, ambulatory, borderline and pre-schizophrenic groups. There was little intra-judge, or inter-judge consistency in the ratings). There are some aspects of personality which run through all projective tests to different extents, so

that Carr (1956) reported that the expression of affect in the TAT, SCT and Rorschach showed similar information. The dynamic ebb and flow of defenses, of levels in a response, of drive involved vs. ego-involved, etc., is far less prominent now. The individual clinician who showed himself an intuitive, free-associative-creator of a personality portrait out of a protocol, has much less of an audience today in our psychological literature. The move is toward the larger and more stable structural aspects of personality. This brings us to our final section on Constancy vs. Variability.

E. *Constancy and Variability in Projective Techniques:*

The assumption that has considerable following in our daily lives is that a person remains recognizably the same in some very important areas. The difficulty in stating what these areas are is rooted in problems mentioned earlier, as well as in the question of reliability for the person, and reliability of the person's responses as filtered through a particular instrument. The variations of examiner-sex, of set, of test situation being ignored for our purposes here, the aim of understanding whether what we see is situational, inter-situational, ubiquitous, or unique, even for this person in this situation, is a formidable problem. The usual notions of reliability demanded of tests have not been satisfactorily adapted to projective devices. The question of constancy has two main aspects: whether the person is in some sense constant, and whether the test stimuli are adequate to obtain samples of these areas of constancy. The work of Bert Kaplan with repeat Rorschachs suggests that one can obtain as many as four or five different Rorschachs from some individuals. Repeat TATs, where the person is asked not to give the same stories, show a wide range of responses. There may be constant elements of style, of speech, of syntactical structure, of the use of personal pronouns, personal references, asides, oohs and ahs, which could be highly meaningful as cues to some aspects of personality. The reliability of profiles, of scores, of individual scores under changes of set or instructional variations suggest that not all scores are equally constant. Also, the specific level of interpretation or rating demanded would make a marked difference in reliability of obtained information. At one extreme of structure and stimulus specificity, the veridicality of perception remains constant. Intrinsic factors fare less well. TAT judges in Little and Shneidman's (1959) study of anamnestic data and psychological test data as sources for rating found TAT judges having significantly lower reliability figures than judges of other tests. Whether one is talking of the judges or the test is not known from the particular study. If we have, however, a projective device that is deliberately unstructured, the problem is one of assessing the extent to which the set and extra-test factors interact with the particular device for a particular person, so as to reveal the shifting and stable characteristics of this individual. If, however, dimensions such as R or F on the Rorschach can be readily altered, while CF is a very stable characteristic of the person, regardless of minor shifts in environs, we would look for more information from such material than from the less stable dimensions, and hope for our clues in such responses. Similarly, if we found that motor inhibition preceding the taking of the Rorschach increases M, or that under varying stresses R is inconstant, the reliability of findings where these dimensions are used to indicate other personality characteristics, would prove questionable. Studies of the sex of the examiner highlight the fact that there are subtle effects of the immediate situation that are often interpreted as deep or enduring aspects of the personality. Also, unconscious communication or non-verbal communication between examiner and patient can be fairly important. Lord had a kind of

reinforcement where she nodded her head for certain determinants, and obtained a profile slanted in the direction of her reinforcement.

Speaking more clinically, Schachtel's classical paper on the subjective definition of the test situation highlights many cues that are not in common use. Murray's schema had the unity thema which was a construct evolved across many tests, ratings and different situations, just as Piaget has the development of schemata that promise structural dispositions with response effects that should prove fruitful areas of research. I am not sophisticated enough with factor analysis to be able to critically evaluate Cattell's P technique vs. R technique proposals. But if what he argues is sound, I would wonder whether the stable vs. the changing aspects of the person might be tackled by such differences. This area of study could prove foundation for theorizing that needs to be solidified with the cement of knowledge before one might build on it.

Summary

I have attempted to cover some of the misrepresentative aspects of our projective techniques, and to indicate the areas we often implicitly and erroneously take for granted in our research efforts. Problems of levels, of stability, of the unit, and of representativeness in the criterion were dealt with. There seems to be little point in carrying out validation studies unless we have non-test indicators, that is, personality-structural variables that represent the person in his complexity both qualitatively and quantitatively, and that such spelling out of the criterion is proven superior to the test material itself. Since we don't have such material, the inevitable conclusion, it seems, is that one must tackle the piecemeal areas mentioned here. When considering creating projective techniques, namely, as links to certain behavior, the links to certain personality characteristics must be kept clearly in mind. Second, there must be multiple assessments of the same constructs, and theoretical variables, from varied approaches so that internal checks for consistency with the theory are sufficient to give confidence in what we are doing. With each segment omitted, our generalizability diminishes along with the stability of our findings. Similarly, our error variance is magnified.

In the case of the global judgment and matching of one group against the other, it would appear here that quite often what is left out is a spelling out of the clinical judgment process that leads to the end result. The fact that TAT predictors versus test judges from other tests differ significantly on one or another diagnostic entity does not tell us very clearly that the TAT is a poor instrument for this kind of prediction, or that the other instrument is better for prediction; it merely tells us that certain judges who are experts having used such material in some manner end up with this kind of performance. (Whether such material is really a significant increment to our scientific advance in projective techniques is doubtful.)

I think that the problem will ultimately be met when we are in a position first to feel knowledgable about the individual aspects of the problems that have been outlined before, and secondly, when we can speak of the empirical validity of certain cues (r_{tc}) obtained on certain tests and the clinician's judgment validity (r_{dc}) in using these particular cues to arrive at this end point. Then, to link this dual instrument of clinician and instrument of tests to the rest of the larger unit mentioned earlier is an idealistic but worthwhile goal. The global approach often asks the clinician or judge to predict to situations that are not represented in the test material, in the judge's background experience, or perhaps not even in the responses offered. We must aim toward knowing what a new technique rep-

resents, what its theoretical underpinnings are, what support, even if only in "construct validation" there is of this theoretical framework, and how we can check and test the complex links that are automatically assumed when a new custom-made projective technique emerges. Unfortunately, a good deal of our current additions are very often like custom-made clothes, expensive, that are supposed to add security and status to its wearer, but often turn out to be overpriced. I have no great words of wisdom to conclude with except to say, caveat emptor, "let the buyer beware."

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Custom-Making Projective Tests for Research

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Projective tests were, of course, originally constructed or custom-made to perform a series of diagnostic and prognostic clinical functions. In recent years, however, adaptations of projective tests have been more and more widely used for research purposes. Research users of projective measures have often considered it necessary to introduce rather radical changes in the usual form of these tests.

What are some of the things that happen to the projective tests that originated in the clinic when researchers adapt them to research use? How do researchers, guided by their theoretical interests and objectives (which are often quite different from those of clinicians), change or custom-make projective devices to make them fit research demands?

First, projective tests are frequently changed in structure. Second, researchers apply a variety of techniques for quantifying projective responses. Third, researchers change the content or nature of the variables investigated through projective tests.

The extent of the sweeping revisions in these areas of structure, quantification, and content makes it possible here only to describe a few variations in each area and merely to enumerate others. In addition to a description of these modifications, however, it is also important to focus upon the similarities and differences between the clinical and research uses of projective tests. Since the clinician's purpose of understanding a given individual's total personality is partially distinct from the researcher's purpose of testing hypotheses about personality variables over a sample of individuals, certain differences between the clinical and research uses of projective approaches are inevitable.

While this survey will cover a variety of projective tests, most of the illustrations of changes will be drawn from research using variations of apperceptive measures. It is beginning to appear that the apperceptive approaches to projective measurement offer the greatest promise of yielding important research results.

One further point in introduction: A distinction should be made between two types of research using projective measures: (1) research *on* projective tests, and (2) research *with* projective tests. Research *on* projective tests (in which the researcher is interested in clarifying and improving the typical clinical application of tests) must be relatively restricted in that the tests must be structured in the typical way and administered and analyzed in a manner comparable to clinical use. Research *with* projective tests (in which the researcher is testing or developing hypotheses generated by theory) utilizes a wider gamut of modifications. Space limitations will prevent this distinction from being followed throughout this paper; in the main we shall be dealing with research *with* projective tests.

I. *Changes in the Structure of Projective Tests:*

In this area, researchers have introduced changes in both the structure of the stimulus and the structure of the response demanded by the test. Certain changes in stimulus structure will be enumerated first.

A. *Increase in structure of projective stimuli; reduction in stimulus ambiguity:*

One contention upon which the clinical use of projective tests is based is that the more ambiguous stimuli should provide the most fruitful protocols for diagnostic and prognostic

purposes. However, researchers have been discovering that highly or moderately structured projective stimuli are more reliable, valid, and productive in research than the more unstructured or ambiguous stimuli commonly used in clinical practice.

Most of the evidence (summarized by Jensen, 1959) supports the general conclusion that the reliability and validity of projective measures are far below the levels demanded by constructors of tests of mental ability, social attitudes, etc. These low reliability and validity coefficients represent formidable obstacles to the use of projective tests for either research or clinical purposes. However, evidence is accumulating that both reliability (e.g., Haber and Alpert, 1958; Kagan, 1959) and validity (e.g., Kagan, 1956; Murray, 1959; Stone, 1955) can be improved by using less ambiguous stimuli (except, of course, when highly ambiguous stimuli are required by the research purpose).

There are other reasons why researchers utilize more highly structured stimuli than those employed in the clinical application of tests. A recent theoretical formulation by Kenny (Kenny, 1961), as well as a substantial body of research evidence accumulated by Kenny and others (e.g., Bijou and Kenny, 1951; Kenny, 1954; Kenny and Bijou, 1953), indicates that picture stimuli of intermediate ambiguity produce protocols of greater "personality revealingness."

In addition to the data on reliability, validity, and personality revealingness, the researcher's use of stimuli of increased structure has been related to another difficulty in research use of projective tests. This results from a confounding of individual differences in (1) what the *S* sees, and (2) what the *S* does with what he sees. The clinician is almost always interested in both perceptual distortions and the apperceptive response. But for some research purposes, simultaneous variation in perception (or what the *S* sees) and apperception (how the *S* uses what he sees in formulating a thematic response) is often a source of confounding. Joseph Veroff, a member of the research group investigating achievement motivation by means of adaptations of apperceptive methods, states this issue in the following terms:

> When a picture is ambiguous, there is a great possibility that people or groups of people will differ in what they say is in general going on in the picture. Presumably, if everyone agreed that a given picture represented men working at an achievement task, then individual differences in the kinds of story told about this situation will reflect individual differences in motivational predispositions to achieve. But if people do not agree, to begin with, that the picture basically was about men working at an achievement task, then individual differences in motive scores can not only be attributable to dispositional differences but also to possible differential experience and interpretation of the kind of situation portrayed in the picture as an achievement setting. (Veroff, 1961, p. 94.)

Dr. Kenny's (Kenny, 1961) theoretical orientation, referred to above, puts the case for increased stimulus structure in a somewhat different framework. This model holds that the sensory input provided by the projective stimulus is followed by categorizing reactions in which the *S* identifies, labels, categorizes or differentiates dimensions of the stimulus and codes the sensory input. These categorizing reactions are then assimilated into a schema, which refers to the imaginative sequences of thought and which determines the story content. Some researchers have found it desirable to reduce stimulus ambiguity in order to keep the sensory input and categorizing reactions relatively constant and allow only the schemata to vary in their influence upon thematic material.

Thus, for reasons of reliability, validity, personality revealingness, and reduction of confounding, researchers have decreased the stimulus ambiguity of certain projective materials, while retaining the use of highly ambiguous stimuli for isolated research purposes.

B. *Decrease in stimulus complexity:*

A second general change made in the structure of projective stimuli is a reduction of stimulus complexity.

In terms of stimulus complexity, two different kinds of apperceptive tests may be distinguished. One, such as Murray's TAT (Murray, 1943), is composed of pictures that evoke a wide variety of conflicts and drives. This type of test has been of great value clinically. The other type of apperceptive test (e.g., Lesser, 1958a), which is increasingly popular in research, includes pictures directed toward the measurement of a single drive or problem area. This type of test demands carefully planned inclusion and exclusion of stimulus elements and attempts to scale the series of pictures to insure an ordering of them along the personality dimension being assessed. The pictures may vary along a continuum of stimulus ambiguity for a particular personality variable, and all elements of stimulus complexity that are not pertinent to the drive being measured are excluded:

For example, one such scaled series of pictures (Lesser, 1958a) attempts to measure fantasy aggression and employs the following modifications of standard TAT procedure:

1. The number and general physical appearance of the main figures depicted are constant for all ten pictures. In each, two boys, comparable in age to the subjects used in the research, are represented.

2. A deliberate effort was made in the design of the pictures to represent the same, single drive area of aggression in each picture. As far as possible, stimulus elements which might provoke achievement, affiliative, dependent and other needs were avoided.

3. Typical TAT procedures employ stimuli which are relatively ambiguous for any particular drive area. By comparison, the series used in the research was graded from the extremely ambiguous through the relatively unambiguous for instigation to aggression.

If a number of such standardized series of scaled pictures can be constructed, each series representing one of a number of different drive areas (e.g., aggression, dependency, sex, achievement, etc.), this method could yield quantified, inter-individual profile analyses descriptive of the comparative strengths of different drives.

What does such reduction in stimulus complexity accomplish for the researcher? Assume that, in order to test a specific hypothesis, he is interested in measuring the strength of a single, relatively unidimensional drive; for example, aggression. If the researcher were to employ a stimulus possessing the complexity of the TAT cards and Subject A were to give an aggression theme and Subject B a dependence theme, the researcher could not conclude that Subject A had stronger aggressive needs than Subject B. It is possible that aggressive needs were equal for the two *S*s, but that Subject B had stronger dependent needs than aggressive needs, while Subject A had weaker dependent needs than aggressive needs. One possible solution for the researcher is to employ stimuli which have a fairly high probability of eliciting the same theme (e.g., aggression) but which reduce (or vary systematically) cues eliciting other themes (Feshbach, 1961). Thus, some reduction in the stimulus complexity of projective approaches can lead to greater precision of measurement in testing research hypotheses.

C. *Other changes in structure of the stimulus:*

In addition to changes in stimulus ambiguity and stimulus complexity, researchers have introduced many other modifications in the stimulus structure of projective tests. For example, verbal stems (e.g., French, 1958) and verbal descriptions of pictures (e.g., Lebo and Harrigan, 1957) have been used. Other studies have varied the characteristics and activities of the central figures (e.g., Blum and Hunt, 1952; Henry, 1947; McClelland *et al.*, 1953; Thompson, 1949; Shapiro, Biber, and Minuchin, 1957;

Weisskopf and Dunlevy, 1952; Weisskopf-Joelson and Money, 1953), the background elements in the picture stimuli (e.g., Bradley and Lysaker, 1957), and the time exposure of the stimulus (e.g., Weisskopf, 1950). Most of these variations in stimulus structure represent attempts to depict story figures in situations which are directly relevant to the variable being measured or predicted.

Not only has research concentrated upon the effects of the structure of a stimulus upon the response to that stimulus, but studies have also focused upon the effects of stimulus structure of pictures in a series upon responses to other pictures in that series. For example, Reitman and Atkinson (1958) have extended the study of stimulus structure to include effects within a series of pictures by examining the effects of serial positions of pictures upon thematic apperceptive stories. Attempts to scale projective responses (e.g., Auld, Eron, and Laffal, 1955; Lesser, 1958a; Murstein, 1961), which will be discussed in a later section of this paper, also involve the effects of the stimulus structure of each picture in a series upon the responses to every other picture in that series.

D. *Changes in structure of the response:*

In addition to the series of changes in stimulus structure enumerated above, researchers have also introduced variations in the structure of the response. For example, Elizabeth G. French's Test of Insight (French, 1958) not only changes the structure of the stimulus by using specially designed verbal stems but also changes the structure of the response by instructing the *S* to explain or interpret the behavior of people involved in problem situations. This test is presented to *S*s as a measure of their understanding of others and the instructions ask the *S* to ascribe reasons or motives to the behaviors described. This technique has proved very successful in eliciting productive and varied responses in a series of samples.

There are other illustrations of variations in response structure for research purposes or for other nomothetic reasons. Examples are Kagan's[1] use of picture stimuli in a paired-comparisons adaptation of the semantic differential technique, Abelson and Lesser's (1959) use of the story-completion approach, Jones' (1956) "negation TAT" (in which the *S* is instructed to tell the most unlikely story he can), and the multiple-choice forms of projective methods (e.g., Eron, Sultan, and Auld, 1955; Harrower, 1945; Hurley, 1955), although these last adaptations are not as different from ordinary clinical methods as some other techniques which modify the structure of the response.

Other studies have not changed the structure of the projective response, but rather have added to it. Dorris, Levinson, and Hanfmann (1954) asked the *S* to indicate whether each response given to a sentence completion test applied to himself; Halpern (1957) framed interview questions around the *S*'s Rorschach responses; while Luborsky (1953) asked the *S* to interpret his own TAT stories. These variations, as Carr (1958) indicates, have contributed to an understanding of the levels of personality functioning reflected in projective responses.

One general conclusion regarding changes in the structure of projective measures is that there appears to be greater variety and flexibility employed in the selection and modification of stimulus structure and response structure of projective approaches for research use than seems to be true of the rather standard, routine selection of tests for clinical use. In the clinic there is a fairly uniform set of projective tests that is applied to all or most cases; for example, the Rorschach in its standard form is widely used for both children and adults, persons of high and low intelligence, etc. Researchers, however, have imposed broad changes in stimu-

[1]Personal communication.

lus and response structure in order to adapt the projective test to the relevant characteristics of the sample of *S*s used and to fulfill the research objectives.

II. *Changes in the Techniques for Quantifying Projective Tests:*

In introducing a description of specific quantitative considerations involved in adapting projective tests to research purposes, it is important to indicate that some psychologists contend that any type of quantitative analysis of projective test material is undesirable even for research purposes. They advise researchers to retain the qualitative, holistic approaches to projective test analysis, which they judge to be superior to quantitative analyses, not only for clinical purposes but for research purposes as well. These psychologists hold that qualitative analyses, which do not demand (a) scoring, or (b) a careful explication of the processes of interpretation and analysis, show greater validity and research value than any quantitative approach.

Ross Harrison (Harrison, 1951) is one of the many strong supporters of the position that the unhampered clinician, functioning without the fetters of scores and statistics, will produce better research results (as well as better clinical results) than the researcher who insists on scoring and thereby "atomizing" the *S*'s protocol. He states:

> Thematic analysts tend to fall into two categories—those who through an imitation of psychometric scoring systems have sought quantification at any cost and those who do a free or global analysis utilizing general principles of interpretation which are logically or empirically derived. The use of scoring systems . . . consists of breaking down each protocol into small units or particles, preferably measurable, and then summating the total of these units and treating the sums statistically. This is not the method employed here, for the TAT does not lend itself readily to such methods. Better results are obtained if each record is taken as the unit of study and tabulations are made of conclusive data rather than a summation of discrete narrative elements detached from individual records in the series. In this way narrative trends and patterns are neither ignored nor distorted by dissection. We can do worse than take a leaf from the Gestaltist's book and try to preserve the integrity of the whole. In so doing we avoid the atomistic fallacy to which many self-consciously scientific ("number-happy"), psychogogues are prone. Hence, the reader seeking statistical tables will be disappointed, for while a large number of tabulations of conclusive data were carried out, they are too numerous and in other ways are unsuited for publication. (Harrison, 1951, pp. 62-63.)

Thus, this position states that quantification means scoring and scoring means that the scored variables have been torn out of the context necessary to a "real" understanding of them. However, the following questions may be asked:

(1) Is a full analysis of context necessary to the precise measurement of all variables for all research purposes?

(2) Where does this total "context" begin and end objectively? How far do you have to go?

(3) Given recent developments in measurement techniques, must all quantitative approaches atomize and destroy the necessary properties of context? Or, are the techniques of multivariate or multidimensional analysis sufficiently applicable to projective measures to allow us to retain and specify with precision the useful segments of context and at the same time add the advantages of exact description, systematized observation, and objective examination of relationships provided by the quantitative treatment of data?

(4) Is not a complete and detailed explication and communication of the processes by which projective material is interpreted ultimately necessary to a full theoretical understanding of these techniques?

Projective tests used in research must meet both the usual psychometric requirements for all tests and certain other conditions peculiar to

projective measures. Inability to meet the ordinary requirements of range, item reliability, scorer reliability, validity, precision, standardization, etc., represents perhaps the greatest obstacle to the research use of projective techniques. While researchers have been able to improve the statistical status of projective tests, there is some doubt that certain of these psychometric requirements can be even approximated by projective tests.

For example, can the test-retest reliability of projective tests be measured at all? It is possible that the variety of the *S*'s interpretations of the reasons for the request to take a projective test more than once will prevent the researcher from approaching the conditions necessary to determine the test-retest reliability of objective tests. Silvan Tomkins[2] compares this situation to the inability to measure the reliability of a response to a joke, stating that if a joke, told twice in succession to the same *S*, does not evoke the same response both times, no inferences concerning the reliability of the response can be made. McClelland (1958) states:

> ...so far as projective measures of motivation are concerned, it would not appear wise to insist upon high test-retest reliability before using such measures because it is so difficult to replicate testing conditions, i.e., to put the subject back in the condition he was in before he made the first response... With characteristics under voluntary control, like adding numbers, it may be possible to ask the *S* again and again, and get the same response because the same conditions can be voluntarily reinstated by the subject. With characteristics not under voluntary control, like motivation, it may be difficult to reinstate a former set of conditions. One test may "spoil" the subject for a retest. (McClelland, 1958, pp. 19-20.)

Despite the many special difficulties involved in investigating the psychometric properties of projective tests, there is little doubt that establishing the reliability and validity of projective techniques is one of the most compelling problems for both clinician and researcher. The need to meet the conditions of internal consistency, test-retest reliability, scorer reliability, reliability of interpretation, predictive and construct validity, etc., is as vital to the use of projective tests as it is to all other psychological instruments.

In addition to problems involved in meeting even the rudimentary ordinary demands of all psychological tests, there are other psychometric considerations peculiar to projective tests. Although all psychological measures attempt to eliminate or control extraneous variables affecting the measure, there are specific "trait-irrelevant" sources of variance (Campbell, 1960) that are especially discomfiting to the user of projective tests. The *S*'s verbal productivity (e.g., Lindzey and Silverman, 1959), the degree of the *S*'s tendency to ascribe affect to all kinds of stimuli (e.g., Kagan, 1961), and the *S*'s tendency to give "socially desirable" responses (e.g., Edwards, 1957) are among these extraneous influences to be controlled. Another possible source of uncontrolled error is variations in interviewer characteristics and effects (e.g., Bernstein, 1956; Veroff, 1961). While individual differences in the nature of the *S*'s relationship to the *E* provide significant information for the clinician, it is sometimes necessary in research (e.g., Veroff, 1961) to adopt elaborate procedures to eliminate the confounding of respondent variability and interviewer variability.

Other problems arise in applying quantification to projective tests. Two prominent difficulties have been the weighting of projective responses and the determination of the degree to which the variables measured with projective tests are unitary or unidimensional in nature.

Complex problems are encountered in the differential weighting of projective responses for research purposes and for clinical interpretation. Does one explosively intense aggressive response to an ambiguous stimulus equal

[2] Personal communication.

ten weakly aggressive responses to unambiguous stimuli, not when it comes to judging pathology or bizarreness of response, but when it comes to measuring the *S*'s aggressiveness? Conceding that two or more responses are related to the strength of a single motive, how should scores or ratings obtained from these different responses be combined?

Equally complex problems are involved in assessing the degree to which variables measured through projective tests are unitary or unidimensional. The variables involved in personality theory and personality assessment are often so broad and so vaguely defined that it is of great value to know the degree to which we deal with circumscribed, unitary variables at all. For example, one measure of fantasy aggression (Lesser, 1957, 1958a, 1958b, 1959a, 1959b), in the attempt to approach the diversity of behaviors subsumed clinically under the label of aggression, includes such disparate themes as torturing, repudiating, threatening, expressing disdain, and killing. In addition to exploring substantive issues with this measure of fantasy aggression, research (Lesser, 1958a) was done to assess the degree to which this measure of fantasy aggression represented primarily a single dominant variable.

Some beginning applications of what were previously regarded as specialized quantification techniques show great promise in solving these problems of weighting and dimensionality of variables. The research (Lesser, 1958a) on fantasy aggression mentioned above applied to scalogram analysis which Louis Guttman (Guttman, 1950) originally formulated to increase precision in attitude measurement. It is not possible to describe here all of the technical conditions for the application of this scaling technique to projective responses. In brief, however, scaling of projective data involves ordering stimuli according to the degree of ambiguity with which the stimuli represent a single motive. This is based upon the premise that when a motive is strong, it will be expressed in response to stimuli of both high and low ambiguity for that motive, while a weaker motive will be expressed only in response to stimuli of low ambiguity. Application of this cumulative item scaling technique to projective stimuli forces the psychologist to remove as much of the hodgepodge as possible from the definition of the variables to be assessed and from the properties of the stimuli used to assess these variables. Scaling forces the psychologist to purify both his definitions and his measuring instruments if he is to meet the criteria of useful approximations to perfect scales for personality variables. Successful application of scaling techniques yields great advantages for weighting responses and for determining the degree of unidimensionality of personality variables assessed through projective tests.

Perhaps one of the most ambitious uses of specialized quantitative approaches with projective data would be the application of multidimensional-scaling models. Since a frequent objection to quantification of projective data is that scoring destroys the context necessary to real psychological understanding of projective material, multidimensional-scaling models, perhaps accompanied by application of recent adaptations of Q-sort rating techniques to projective tests (e.g., Friedman, 1957; Silverman, 1959), would seem especially valuable. These multidimensional-scaling models may eventually permit detailed quantitative analyses within a total, precisely described context of variables retained through use of multidimensional techniques.

Torgerson (1958) identifies the areas of application of multidimensional-scaling models as follows; their relevance to projective measures is apparent:

> The multidimensional-scaling models . . . represent more or less direct extensions of the notions underlying unidimensional-

> scaling models to deal with situations where the stimuli may vary simultaneously with respect to several dimensions. The typical problem to be handled by the multidimensional-scaling procedures might be roughly stated as follows: Given a set of stimuli which vary with respect to an unknown number of dimensions, determine (a) the minimum dimensionality of the set, and (b) projections of the stimuli (scale values) on each of the dimensions involved.
>
> In the multidimensional-scaling models, the notion of the single, unidimensional, underlying continuum is replaced by the notion of an underlying multidimensional space. Instead of considering the stimuli to be represented by points along a single dimension (i.e., a unidimensional space) the stimuli are represented by points in a space of several dimensions... (Torgerson, 1958, pp. 247-248.)

In summary, while several strong objections have been directed toward *any* attempt to quantify projective material and while there are problems in meeting the usual as well as the special requirements of tests, certain advances have been made in applying quantitative techniques to projective tests and some promising avenues are open for exploration.

III. *Changes in the Content of Projective Variables:*

In many instances, both clinical and research applications of projective tests focus upon the same or similar variables. For example, the motives of dependency, sex, aggression, affiliation, achievement, etc., have been of as much interest to researchers as they are to clinicians. However, the bases for choosing variables for study are often different in clinical practice and research. Researchers ordinarily study variables generated by the theoretical propositions being tested; clinicians ordinarily focus upon variables generated by their conception of the most significant personality dimensions. While these variables often overlap, they are sometimes quite different.

For example, much research (e.g., Henry, 1956; Holt, 1958; Kagan, 1961; Rapaport, Gill and Schafer, 1946; Schafer, 1958) using projective tests now concentrates upon a series of structural, stylistic variables—variables related to "how the response if given" as opposed to "what is given." Jerome Kagan (1961) reports studies dealing with correlates of individual differences in the general tendency to ascribe any affect at all to a wide range of stimuli.

Investigations (e.g., Henry, 1956; Holt, 1958; Powers and Hamlin, 1958; Wyatt, 1947) of the characteristics of language usage are prominent in research using projective instruments. Studies have focused upon the syntax of the *S*'s verbal behavior, the ordering of language units in the verbal response, and the use of preferred language forms (e.g., proportion of verbs to nouns, use of qualifying phrases, and the use of future or past tense or subjunctive mood in describing thematic action). Related to these studies are others (e.g., Lesser, 1958b) that concentrate upon the degree to which the *S* attempts to maintain psychological separation or distance between himself and the story he tells.

Variables that cluster around the kind of logic, illogic, or alogic used in producing the projective responses are being studied. For example, Edwin Shneidman's (1961) recent theoretical formulation regarding "modes of thought" has specific application to projective responses.

Another variable included in a series of studies (e.g., Gurel and Ullmann, 1958; Kenny, 1954; Weisskopf, 1950a) is "transcendence"; the degree to which the *S* goes beyond what is provided by the external stimulus as well as perceptual distortions in describing the external stimulus have both been of research interest. The determinants of the "emotional tone" of thematic material have also been studied extensively (e.g., Eron, Terry, and Callahan, 1950; Wittenborn and Eron, 1951).

Paralleling the increased clinical interest in ego-functioning and defenses is the research emphasis upon

avoidance and anxiety variables (e.g., Feshbach, 1961; Jensen, 1957; Klopfer, 1957; Lesser, 1958b, 1959a; Mandler, Lindzey, and Crouch, 1957; Purcell, 1956, 1958). The prominence of the theoretical concept of approach-avoidance conflict has led researchers to identify and measure avoidance or inhibitory tendencies expressed in fantasy.

Other variables now included in research studies have been described by Henry (1956), Holt (1958), Wyatt (1947), Rapaport, Gill, and Schafer (1946), etc. While many of these variables are of interest to clinicians as well, research use of projective tests has resulted in a broadening of the number and kinds of variables extracted from projective responses and some sharpening in the definition of these variables.

Summary

Clinical practice involving projective tests has undoubtedly influenced the manner in which these tests are used in research. It may now be expected that evidence obtained through custom-making projective tests for research will, in turn, influence and change clinical practice.

A number of comparisons have been made herein between clinical and research use of projective tests. Differences have been described in the degree of structure of the stimulus, in the approach to qualitative *versus* quantitative analyses, in the selection of variables to be studied, etc. These differences in approach to projective tests are in some degree inevitable and are undoubtedly related to the different objectives of clinical and research activities. However, clinical practice can now be clarified and improved by incorporating knowledge gained through the research use of projective tests; the value of projective tests in research can be increased by considering recent advances in clinical practice.

One point with respect to the general approach to projective tests is equally important to both clinician and researcher. McNemar (1960) suggests that the number of tests produced in recent decades has far outstripped the number of good ideas as to what to test. He makes the following point about the use of tests in research; the word "clinical" has been added where it is considered appropriate:

> I do not want any student of mine to trudge off weighted down with a box full of statistical [or testing] tools in search of a research [or clinical] problem that permits him to display skill with his tools. The research [or clinical] problem should come first; then ... the available tools should be scrutinized ... (McNemar, 1960, P. 299.)

This admonition is meaningful to both clinician and researcher. While we have a substantial historical investment in projective tests, they are obviously of secondary significance to the quality of the research or clinical idea to which they are applied.

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When Inquiry Fails

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Rorschach workers frequently complain about the difficulties of administration and interpretation of children's Rorschachs. These complaints focus primarily on the inquiry procedure. Comments on the inquiry with children range from totally pessimistic views to broad directions to establish good rapport. For example, Bochner and Halpern (1945, p. 108) state that " . . . difficulties may prove insurmountable and a true inquiry may not be obtained," while Ames, Bates, Learned, Metraux and Walker (1957, p. 27) suggest that the inquiry consist of "safe questions", and are satisfied to judge location by content or by the "direction of the child's regard." They feel that close inquiry disrupts the "flow of the test." Most workers (Ford, 1946; Piotrowski & Lewis, 1950; Hertz, 1936), using a number of administrative procedures, make much of the child's seeming unwillingness to clarify his responses.

The impetus for this paper was the observation that although taking the Rorschach represents a multifaceted, elaborate and rich experience for a child, too often the data obtained are disappointingly meager and barren. Difficulty in Rorschach administration with children may occur either in obtaining responses, or in the inquiry, or both. It has been suggested that the Rorschach may consist of "two tests": the percepts, which express autistic, need- or motive-related aspects of the individual, and the inquiry, which requires a rational, cognitive explanation of the percepts (Levin, 1953). It is not surprising, therefore, that the young child should have difficulty in coping with the demands of the inquiry. This paper is based on the contention that problems of inquiry with children arise not only because of lack of examiner skill, but represent psychological processes within the youngster, and therefore these problems have clinical and theoretical importance.

We can assume that the Rorschach response is an end-product of the cogwheeling of the perceptual and associative processes (Rapaport, 1946). The clinician tries to estimate the relative role of these two processes by asking relevant questions during the inquiry. These questions require the patient to dissect and analyze the perceptual-associative response, that is, separate it into its components; and then make it public by verbalizing the experience. This is very difficult for children to do. Over and over the question arises why a child patient does not respond to inquiry in accordance with the clinician's expectations and demands. The most ingenious inquiry questions are all too often shipwrecked by the pleading, angry, or simply stolid reiteration, "It looks like a bat." Such a percept may have been prompted by any one of the determinants.

Our purpose is to examine three kinds of inquiry failure against the background of developmental and clinical issues. Suggestions for ways in which these inquiry failures may be dealt with follow from the broader theoretical considerations.

Several explanations suggest themselves for the essential failure of the inquiry with children. In the first

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[1] This paper was written while S. J. Blatt and E. L. Mirmow were USPHS post-doctoral Fellows in clinical psychology at Michael Reese Hospital. Dr. Mirmow was on leave from Mills College, Oakland, California, and Dr. Blatt is currently at the Department of Psychology, Yale University, New Haven, Connecticut.

place, if *the response is a syncretic fusion*, it is clearly futile to expect the child to express linguistically what he cannot articulate perceptually. In the second place even if perceptual articulation has taken place and the child is more or less aware of what aspects of the blot determine the response, he may be *unable to pour the perceptual articulation into the verbal mold* provided by the examiner. These two kinds of explanations for inquiry failure are related in that they are directly relevant to the formation and communication of the Rorschach response. The third explanation carries general implications for the interpersonal relationship. Like other tests, *the entire Rorschach experience may dangerously reproduce some specific unwholesome aspect of every-day life.* For example, it may be that perceptual functioning has developed beyond the syncretic, and that verbal facility is adequate for elaboration of the response, but the inquiry provides a likely stage on which to display negativistic behavior.

Because in childhood words are not a major vehicle of communicating experiences even to oneself, much less to others, verbal responses of children during the Rorschach often fail to capture fully the richness of the Rorschach response process. Frequently, for the young child, perception is physiognomic, and experience is syncretic. Objects, people, and events are perceived as an undifferentiated totality in which the child and reality tend to merge and become a single gestalt. Syncretic experience is highly personal, replete with affective, motoric, perceptual, and cognitive elements, not separate but inextricably intertwined (Fenichel, 1945; Werner, 1940). When these elements do not gain expression separately, this does not necessarily mean their absence. There may be a syncretic fusion of these elements, or the differentiation may have taken place but the child lacks the verbal skills to communicate in a differentiated way.

Only under certain circumstances is it possible to decide which of these two factors, perceptual or verbal, accounts for the failure of inquiry. In the case of the adult, the operation of syncretic perception can be identified mainly by the corollary loss of ego boundary, the on-rush of affect, and the breakdown of otherwise logical thought processes; i.e., shifting onto a lower level of psychological functioning is implied in the syncretic mode of perception in an adult. The loss of distance is frequently accompanied by anxiety over the breakdown of normal barriers.

In the young child, disruption of functioning and attendant anxiety are often absent since his normal mode of response is syncretic. Here we are not dealing with *loss* of ego boundary, but with the relative *lack* of well developed ego boundaries. In the absence of an on-rush of affect, variability of functioning, and anxiety, there is no easy way to distinguish between syncretic functioning or perceptual differentiation not well verbalized. The problem may be handled, however, if the clinician has other data to confirm the absence of well formed ego boundaries. In addition, indications may be present within the Rorschach itself. For example, a child kicking his feet in a forward-shuffling way as he reports perceiving a donkey, or another child accompanying a perception of a pumpkin face by contorting his own face, is clearly demonstrating the fusion of affect, perception and motor functioning in the response. In other words, there is elaboration of the response, but not in verbal terms because by definition syncretic experience defies such expression. Consequently, the essence of such response lies in what is captured by observing the movement, posture, facial expression, and intonation of the child while giving a response. In a sense, the moment one begins to inquire into such subtleties one has already begun to violate their substance. The clinician attempting to

quantify the elusive phenomena of the syncretic mode is establishing a barrier and a distance between experience and communication, the unity of which is the very essence of the response. As one of the results of development, the child becomes more and more able to translate his immediate experiences into verbal language. Verbal development helps him to abstract separate components from a totality (Schachtel, 1949).

Recognition of instances of inquiry failure resulting from an inability to verbalize well discriminated percepts is a somewhat easier matter, since the percept itself holds the promise of elaboration. This is a situation with which every examiner is familiar in the case of the adult when some aspect of the response, or of its description, suggests the presence of certain determinants and gives directly to the inquiry. In the case of the child, however, the inquiry questions may not yield the desired information. Here the main problem is how to provide the child with modalities of communication to supplement his own failing attempts at being explicit. Of course, the examiner can choose to settle for the usual method of inquiry, but he is often left with inadequate data about the determinants. Attempts to score the record unelaborated for determinants usually result in a large number of responses which can be characterized as "*F* by default." The consequence of the situation in the case of the individual patient is clear. There will be a misunderstanding of the child's mode of reality testing and an oversimplification of the complexity of his experiences. Also some curious conclusions emerge from research data. The rationale of Rorschach determinants (Mayman, 1957; Rapaport, 1946), would lead one to expect a predominance of affect-dominated responses in the young child, to be mediated and modulated by form determinants only with maturation. Yet, Ames *et al.* (1957) report a high proportion of form responses in young children. It may well be that this reported predominance of $F\%$ is an artifact created by the child's inability to communicate other determinants.

Remembering that the Rorschach response is seen as the result of the cogwheeling of perceptual and associative processes, we can suggest some ways in which it may be possible to supplement the meager information of the inquiry by exploring further one or the other aspect of the response process. For example, one way to help the child communicate determinants is to bridge for him the gap between percepts and words. Drawing, as a motoric-perceptual activity, provides such a bridge.[2] Early research with adults (Rochlin and Levine, 1942) suggests that drawings of Rorschach *percepts* clarify ambiguities of scoring, and that the task itself often stimulates subjects to give additional responses. The drawings seemed particularly helpful in distinguishing between *FC*, *CF*, and *C* and shading. This "graphic" technique was found particularly useful with organic patients.

Children do not seem to mind copying figures as in the Bender Gestalt Test (Bender, 1938); also they are quite willing to "draw a person" (Machover, 1949), while they would be hard put to give a verbal description of a man or woman. We have found that youngsters are similarly willing to make drawings of Rorschach cards, even of those which they have rejected. For example, one seven-year-old girl, though rejecting Card I, happily produced a recognizable pencil copy of it, divided it into the logical *D*'s and *S*'s, colored her production with élan, and proceeded to give the following responses, not to the Rorschach card in full view, but to her drawing of it: "These look like mittens (*D* 1), this looks like the letter 'M' (*D*d 22), and these four (*D*ds 26)

[2] We are indebted to Mr. Martin Mayman for his comments on this procedure.

look like church windows."[3] Then she responded willingly to the inquiry. The resultant information proved to be consistent with the picture of her from the rest of her record, and, as a matter of fact, represents a miniature of her generalized *D* approach and her responsiveness to color.

We have also found that when meagerness and constriction are generalized ways of coping, the drawings of Rorschach cards will indicate this, thus confirming the extent of constriction across the perceptual, associative, and motoric modalities. One tight, constricted, intellectualizing boy, who stayed studiously away from color, went to great pains to produce almost a carbon copy of the outline of Card I, did half, gave up, and pushed crayons away with the comment: "I'll let someone else have the pleasure of spoiling your beautiful crayons."

It should be pointed out that drawing of the card emphasizes the perceptual over the associative aspect of the Rorschach response process, whether responses are drawn, as in Rochlin and Levine's study, or cards are drawn, as we have requested of our subjects. The contribution of the associative aspect of the response process can also be highlighted. We can assume that the content of many Rorschach responses is determined by issues prepotent and regnant for the child. However, elaborations during the inquiry may not always be sufficient to understand the full meaning of the response.

As has been reported earlier by Janis and Janis (1946), free association to the Rorschach responses is a useful supplement to the original protocol. We have found that embedding the Rorschach responses in a word association procedure (Rapaport, 1946) also elicits additional material which sheds light on the role or position of a percept and its content in the child's fantasy life.[4] This method of supplementing the inquiry is still in the verbal realm, but with one important difference. As compared to the ego functioning called for by the usual inquiry, the word association procedure is considerably less bound by the stimuli of the card and by the requirements of logical thought. Also, the element of justification (having to defend the response) is attenuated when associations are requested in the absence of the card. Above all, however, associations to the original response widen the scope of content interpretation. For example, a shy, timid, seven-year-old encopretic girl responded to Card IV with "giant." On the word association supplement the association was "baby giant." This theme of big-little opposition was characteristic of many of her responses to the word association supplement, and gave evidence of a new dimension of a regressive defense against phobic concerns.

Similarly, an older boy responded to Card II with "man" without significant elaboration in the inquiry. The word association to "man" was "beast." On Card VI a response of "waterfall" by the same boy elicited the association "beauty." The direction of the associations provided a broader base for interpreting the content of "man" and "waterfall", particularly because the patient was struggling with identity problems, the mother being aesthetic, sensitive, the father alcoholic and explosive.

We have discussed two instances of inquiry failure, one arising because perceptual functioning itself is syncretic, the other emerging because perceptual differentiation cannot be translated into words by the child. For the latter instances two suggestions for supplementing the inquiry were made. One very important source of difficulty of inquiry remains yet to be discussed.

It is likely that when the Rorschach experience reproduces a noxious parent-child relationship, keynoted by diffusion and non-specific demands, it is the inquiry process which will take

[3] The location symbols are those of S. J. Beck.

[4] We are indebted to Dr. David Gutmann for his comments on this procedure.

the brunt of the resistance. For example, the child whose mother repeatedly confronts him with diffusion, demands a response, and then requires the child to justify his behavior, could easily find in the Rorschach a comparable threat. After all, the blots are diffuse, and there is a request for a response and for its justification. The examiner's questions: "How do you see it?" "What makes it look like . . .?" are then easily interpreted by the child as equivalent of the parental "Why do you do things like that?" It is one thing to have to respond to diffusion; one can do this impulsively with minimal mediation by the ego. To *explain* one's response to the diffusion is a matter of a different order; it is the latter request which taxes the childish ego. Of course, it is difficult to consider this kind of inquiry failure apart from the general problem of how interactions with the parents affect the child's experiencing of the total diagnostic evaluation. The expectations and distortions which the child or adult brings (as well as those of the examiner) are likely to weave their way in and out of the relationship throughout the administration of the diagnostic battery (Schafer, 1954; Engel, 1960). Also with regard to the Rorschach and the problems of inquiry discussed above, it is not always possible to cull out the contribution of the nature of the relationship as it pertains to the child's experience of diffusion. In other words, the inquiry problem arising from essentially syncretic perception or from lack of ability to verbalize the percept may be posed against the general background of a relationship difficulty.

However, we are now concerned only with the instances where the relationship difficulty enters the scene at the time the Rorschach inquiry is approached. We often see dramatic shifts in otherwise smoothly flowing relationships with children. A relaxed child may tighten up, a cooperative child may become cranky, querulous, and negativistic. Some children show fear that they are not meeting the examiner's expectations. The examiner in turn becomes frustrated; some of the formulations he has entertained may suddenly topple under the weight of a curiously "sick" Rorschach. It becomes increasingly difficult to untangle the relative contribution of the child's personality, his transitory reaction to the inquiry and the examiner's mounting impatience.

If the examiner senses that the inquiry procedure is leading to this impasse, he may try to deal with the difficulty within the confines of the Rorschach inquiry. He may try to rephrase inquiry questions to deemphasize the implications of demand and to communicate to the child his emphatic desire to share his perceptions. For example, "What makes it look like a bat?" can as well be put, "I'd like to see the bat the way you see it." In this way the examiner may succeed in moving the Rorschach relationship out of the realm of the helpless feeling "adults ask of me impossible things." In addition to such emphasis on empathy, the examiner may try to handle the problem directly with the child, stopping all testing to try to work through the feelings of the child about the inquiry. If, despite all these attempts, the examiner still finds himself with a meagerly elaborated Rorschach record, it may be that the examiner and child have not yet found a mutual modality for communication.

Based on the implicit assumption that the Rorschach is a valuable and often indispensable part of the psychological battery for children, we have attempted to elucidate some of the reasons for inquiry failure. From the consideration of the basic response process involved in the Rorschach, suggestions for supplementing the inquiry procedure were evolved. The reasons for inquiry failure, as well as the modalities through which inquiry can be facilitated, have theoretical and clinical significance.

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Achromatic Color in Cards IV and VI of the Rorschach[1]

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In a recent article (Exner, 1959) data were presented which suggested that the achromatic color on Card I plays a very important role in precipitating the popular response of a bat. Therefore it seems logical to assume that achromatic color might likewise have an important relationship to some of the more common responses occurring to Cards IV and VI in the Rorschach. Beck (1949) suggests that a response of "animal skin" or a variation thereof to either of these cards should be considered as popular; whereas Klopfer (1954) considers this response as popular only to Card VI, listing no popular response for Card IV. Both men cite the common use of shading or texture in these responses but make little mention of the achromatic color itself as a determining factor. Research of the literature pertaining to the interpretation of achromatic color responses reveals that very little work has been done in this area. It has been more customary for researchers to concern themselves with other determinants. Beck has preferred not to score achromatic color as such, subsuming responses to black and grey under the shading scoring category, while Klopfer has been accustomed to scoring such responses as *C'*. Baughman (1958) has demonstrated that the number of responses involving shading as a determinant may be significantly underestimated by the traditional inquiry method. In his research Baughman used the Beck scoring of *Y* for shading and therefore subsumed achromatic color response under this category. In one of his studies Baughman (1959) found that the animal skin response to Card IV was considerably more frequent when the blot was shaded as compared to nonshaded variations. This same finding was applicable to Card VI when only the *D1* area was considered but not when the whole blot was involved in the response.

Method

Chromatic copies of Cards IV and VI were created using the monochrome-dye-coupling method so that the achromatic color was replaced by a blue similar to that of the *D1* area of Card X. Size, form, background, and shading components were held constant. Eighty subjects were selected from the sophomore class of DePauw University and divided into two matched groups. Matching was made on the basis of age, sex, marital status, freshman year grade-point average, and the L-score on the American Council on Education Psychological Examination. As a result of the matching each group contained 25 males and 15 females.

The chromatic variations of Cards IV (IVC) and VI (VIC) were administered to the experimental group in the procedure normally used with the Rorschach, accomplishing the inquiry after the subject had free-associated to both cards. Prior to the beginning of the test period a short statement was made to the effect that the student was a subject in a scientific experiment, the results of which would have no bearing on his status as a student in school. The same procedure was used with the control group to which was administered the standard Cards IV and VI of the Rorschach.

Results

Statistical evaluation was accomplished by use of the matched *t* test. Responses to Card IV were compared

[1] This research was supported in part by a grant from the Graduate Research Council, DePauw University.

TABLE I Total Number of Responses and Average Reaction Times for First Responses

Item	Card IV	Card IVC	Card VI	Card VIC
Number of Responses	83	90	92	101
Average Reaction Time	19.4"*	11.2"	26.8"**	14.1"

* Statistically significant from IVC at .01 level.
** Statistically significant from VIC at .01 level.

with the responses to Card IVC and the responses to Card VI were compared to the responses to Card VIC. The total number of responses to each card and the average reaction time for the first responses are shown in Table I.

No statistically significant differences were found between the groups on either card for any of the normally used scoring categories for Location, Determinants, or Content. The number of "skin" responses to Cards IV and IVC were the same while the number of such responses to Card VI were only two less than to Card VIC. The only statistically significant differences that occurred were between the average reaction times for the first responses. In each instance a significantly longer reaction time occurred in response to the standard cards.

DISCUSSION

The fact that no significant differences occurred between the groups on either card for any of the scoring categories seems to distinctly indicate that achromatic color does not play a very important role in influencing a subject's response to either of these cards. Certainly it is demonstrated as unimportant in precipitating the popular "skin" responses. This seems to add weight to Baughman's findings that the shading and form of the cards are most influential in precipitating these responses. The significant differences which occurred in reaction times seem to support earlier findings (Exner, 1959) that the blue color as is used in the *D1* area of Card X is much easier to respond to than other colors.

Since it appears that shading, not coloring, is more influential in precipitating the "skin" responses to Card IV and VI, it seems more logical than ever to appeal for some agreement between scoring systems so that a distinction can be made between responses determined by achromatic color and responses determined by shading. Certainly some common scoring system could do much to enhance research.

SUMMARY

Eighty college sophomores, matched on the basis of age, sex, marital status, grade-point average and ACE L score, were divided into two groups of forty each. Cards IV and VI of the Rorschach were administered to one group while chromatic variations of Cards IV and VI were administered to the second group. The experimental cards were colored blue as in the *D1* area of Card X by a monochrome dye-coupling method so as to hold shading, form, and background constant. The average reaction times for first responses was significantly greater to the standard cards than to the chromatic variations. Examination of the responses revealed no significant differences between the groups in any of the commonly used scoring categories. This research seems to support earlier findings that shading and form, rather than achromatic color, are more influential in precipitating the popular "skin" responses to these cards.

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Preference Rankings of the Thematic Apperception Test Cards by Adolescent Normals, Delinquents and Mental Retardates[1]

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PROBLEM

That the TAT cards have differential "emotional loadings" has been suggested by many (Bijou & Kenny, 1951; Eron, Terry & Callahn, 1950; Lebo, 1955). White & Schrieber (1950) in administering the TAT by asking the S to choose those cards he would like to tell a story about, reported that the selection of the cards themselves was of diagnostic utility. Korner & Fisher (1956) had Ss rank the TAT cards on a preference continum of personal preference and concluded that groups develop preference for form, style and subject matter (positively and negatively) which preference has a direct relationship to the social value system of the group. The factor of projective choice would then be of diagnostic value only when viewed against an as yet non-existing knowledge of factors influencing the choice of TAT cards.

The present study investigated the following hypotheses: (1) normal Ss will show significant agreement with respect to their preference for the TAT cards; (2) delinquent Ss will show significant agreement among themselves with respect to a preference pattern but their preference pattern will be less similar to that of the normal Ss' than will the retardates; (3) for mentally retarded Ss, there will be a positive relation between intelligence and (a) the presence of a reliable preference pattern, and (b) agreement with normal Ss' preference pattern.

These hypotheses were based on the rationale that preference for TAT cards is a reflection of the incorporation of the social value system and that (a) normal Ss will reflect this current value system; (b) delinquents have rejected the social value system; (c) mental retardates' ability to incorporate the value system is a function of a limited learning capacity.

PROCEDURE AND SAMPLE

The normal group was composed of 50 (19 male, 31 female) high school seniors, 17 to 19 years of age with IQ's between 90 and 120. The delinquent group was composed of 50 Ss (39 male, 11 female) 15 to 20 years of age with IQ's between 85 and 125, who had been incarcerated for not more than three months at a maximum security processing center for adolescent offenders. The records of these delinquents were reviewed by the writer and in each case there was a long history of anti-social behavior which resulted in the S being considered "incorrigible" and in need of incarceration. The retarded sample consisted of 65 Ss (40 male, 25 female) 15 to 22 years of age, with IQ's between 43 and 79, none of whom had been hospitalized for more than three years and for whom there was an absence of both historical and current delinquent behavior.

Each S was individually presented with the 30 TAT cards displayed on a large board with the order of the cards being rotated in succession for each presentation. The S was first asked to select those cards he liked,

[1] The writers would like to acknowledge the assistance of Mr. R. Oyler, Claremont High School, Claremont, California, and Dr. H. Weatherly and Mr. W. Crain of Southern California Reception Center and Clinic, Youth Authority, Norwalk, California. Special thanks are due Miss Sally McHenry of Pomona College who actively participated in all phases of the study.

[2] The senior writer was at Pacific State Hospital at the inception of this study.

then those he disliked and to rank from most to least his likes and dislikes. He was then asked to give similar rankings to the remaining cards. This procedure not only simplified a complex task but also gave information on the frequency with which each card was liked and disliked.[3] For the retarded Ss, a retest was given eleven weeks after the original testing.

Results

Of the 65 retardates, 46 (29 male, 17 female) had test-retest reliability coefficients which were high enough to indicate some consistency in their preference pattern.[4] The correlation between IQ and individual reliability coefficient for the 65 cases was .310 ($P<.02$) and the correlation between IQ and the S's rank correlation with the mean rank order of the normal Ss was .465 ($P<.001$). Thus, support is lent to the hypotheses that (a) intelligence is related to the development of a consistent preference for the cards, and (b) the brighter the retardate, the more his preference pattern will resemble the normal.

Coefficients of concordance indicated that each of the three groups had a high degree of agreement among themselves ($P<.001$) as to their card preference: (normals: $W=.330$, $X^2=478.5$; delinquents: $W=.272$, $X^2=394.4$; retardates: $W=.306$, $X^2=408.2$). Table I presents the mean preference rankings of the cards for the three groups.

Rank order correlations between the ranked choices of the three groups gave the following results: normals and delinquents .709; normals and retardates .489; delinquents and retardates .727. All of these correlations are significant beyond the .01 level. The second hypothesis is not substantiated in that there is more similarity between the ranked choices of the delinquents and normals than between the retardates and normals. It appears odd that the delinquents and retardates agree as well as the delinquents and normals, but that the retardates and normals show considerably less agreement. Perhaps the poorer agreement between normals and retardates is a partial function of the stringency of the statistical test employed. When the data are viewed with respect to the groups liking, disliking or being indifferent toward a card, more agreement is apparent than that indicated by the correlation analyses. Mean preference ranks 1 through 10 were taken as indicating "liked" cards, 11 through 20 as indicating "indifferent" cards and 21 through 30 as indicating "disliked" cards. Normals and delinquents showed complete agreement on 19 cards, normals and retardates on 17 cards and delinquents and retardates

Table I Mean preference rankings of the TAT cards of normals, delinquents and retardates

Mean Rank Order

Card Number	Normals	Delinquents	Retardates
1	5	9	5
2	3	1	1
3 BM	17	27	24
3 GF	12	23.5	23
4	14	4	10
5	19	21	17
6 BM	24	15.5	6
6 GF	20	11	7
7 BM	18	15.5	11
7 GF	10	10	4
8 BM	22	26	16
8 GF	4	5	15
9 BM	6	8	19
9 GF	25	7	14
10	7	13	9
11	13	18	18
12 BG	1	2	3
12 F	28	29	26
12 M	21	22	30
13 B	2	3	2
13 G	16	14	12
13 MF	23	25	29
14	8	17	20
15	27	23.5	22
17 BM	15	12	25
17 GF	11	6	13
18 BM	29	30	27.5
18 GF	26	28	27.5
19	30	19	8
20	9	20	21

[3] A later paper will report on the clinical aspects of such choices.

[4] All subsequent analysis on the retarded sample included only the 46 "reliable" Ss whose test-retest reliability coefficient was greater than .461 ($P<.01$)

on 18 cards. All three groups agreed on 14 cards. Complete disagreement, i.e., one group liking a card and the other disliking it, was infrequent (1, 3 and 0 for the above respective groupings). Where unanimous agreement existed on the liked cards (1, 2, 7GF, 12BG, 13B) the themes suggested are those of peace, contentment and happiness; where unanimous agreement existed on the disliked cards (12F, 12M, 13 MF, 15, 18BM, 18GF) the themes suggested are those of violence, evil, death and conflict; and where there is unanimous agreement as to indifference (7BM, 11, 13G) no particular theme is suggested.

SUMMARY

Preference rankings of the TAT cards were obtained from groups of normals, delinquents and mental retardates. The results indicated that: (1) within each group there was significant agreement as to a preference pattern for the TAT cards; (2) within the retarded sample, the brighter the S the more reliable were his preference choices, and the more his preference pattern resembled the normals'; (3) the preference pattern of the delinquent group was highly similar to the normals'; (4) there was poorer agreement between the preference patterns of normals and retardates than between either normals and delinquents or between delinquents and retardates; (5) considerable agreement existed among the groups with respect to preferred and unpreferred cards. Cards unanimously chosen as "liked" suggested themes of peace, contentment and happiness, whereas cards unanimously chosen as "disliked" suggested themes of violence, death and conflict.

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A Study of Perceptual Process of Rorschach Cards By Tachistoscopic Method on Movement and Shading Responses[1]

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PROBLEM

The most important problem in the Rorschach may be the genetic process of perception. This process has hitherto been framed in such terms as "perceptanalysis" or "perceptual behavior", but there are many points that require elaboration. We can point out, for instance, the temporal development of perception. Although the problem of the temporal factor has so far been comparatively neglected, it has great significance when we regard the Rorschach as a test of perception or apperception, as Rorschach (1921) primarily intended it to be. In the Rorschach procedure there is a certain period of time from the instant the subject begins to watch the stimulus card till the first response occurs. This period is ordinarily called "initial reaction time", and we can divide this temporal process roughly into two parts; the first one is from the time the stimulus is given till the perception is formed, and the second one is from this formation of percept till the verbalization. Besides, a certain period of time comes between the first response and the second one, and in the ordinal method, after responses are reported in "the performance proper", a long interval occurs before each response is confirmed in detail in "the inquiry period". Therefore, as long as the usual method is employed, it is impossible to know fully the nature of the subjects' perception or imagination in their observation of the blots. But what we really want to know are the forms of perception or imagination and their process. How, then, can we observe this process? Such a process is difficult to observe under normal condition of perception. Sander (1930) assumed that a perceptual process, essentially similar to the temporary perception preceding the final reaction under normal stimulus conditions, can be observed by presenting figures in very brief exposures by means of the tachistoscope, in twilight vision or indirect vision, or in extreme miniature. He named this tachistoscopic perceptual process "Aktualgenese". Later, Werner (1956) translated this term as "microgenesis" or "microdevelopment", and tried to apply this theory to the developmental process of memory, or of movement. This microgenetic theory has been reviewed in detail by Flavell and Draguns (1957). The method of tachistoscopic presentation, often adopted in the experiments for the verification of this theory, has indicated a course for our study. Stein (1949) tried to examine the effects upon personality indicators of variations in stimulus duration, by presenting Rorschach Cards tachistoscopically, probably the first attempt at tachistoscopic study of the Rorschach. Afterward Baughman (1958) performed a similar experiment, the results of which, however, differed from Stein's. We suppose that the discrepancies resulted from differences in procedures, though we have no exact idea of Baughman's methods.

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Stein presented 10 cards successively to one subject under four conditions of exposure, 10 m sec., 100 m sec., 3 sec. and free exposure time. With such a procedure, the responses under the first condition of exposure may have an effect on the responses under the following conditions. It is unfortunate that he determined the order of the frequencies of determinants at each exposure level on the basis of the responses to all 10 cards together, since each card has a different stimulus value. Phillips and Framo (1954) carried out a comparative study on the perception of normals and of schizophrenics, based on the developmental theory. Their study went a step further than Stein's in such respects that they employed a control group, and that they took the statistics. In 1959, we carried on an experiment on a group of normals and a group of schizophrenics, the experimental design being as follows: (a) We used seven conditions of exposure, 2 m sec., 10 m sec., 30 m sec., 100 m sec., 1 sec., 5 secs., and free exposure time. (b) We distributed male and female subjects, and the order of presentation equally to each condition of exposure; (c) We arranged it so that each condition had different subjects; (d) We used Card I and Card VIII. We found that three conditions, 2 m sec., 100 m sec. and 5 secs., were not statistically significant, so we omitted these three exposure levels from the next experiment (Horiuchi, 1960). Instead, we added a group of neurotics, and increased the number of subjects in each group.

The following experiment was aimed at the analysis of the temporal developmental process of movement and shading.

METHOD

Apparatus: Dodge-Harvard type tachistoscope.

Subjects: The normals were 40 male and 40 female students of Doshisha University, the mean age of males being 21 years, 5 months and females 21 years. Those who scored high in emotional insecurity on the Yatabe-Guilford test (Tsujioka, 1957) were eliminated. The schizophrenics were 40 male and 40 female patients of the Psychiatric Department of Kyoto University Hospital and Iwakura Hospital, Kyoto, the mean age of the males being 34 years, 5 months and females 35 years, 6 months old. They were diagnosed by psychiatrists. They were mostly hebephrenic, with a few paranoid and catatonic cases. Those with marked intellectual disturbances were eliminated. Their school career was comparatively short. The neurotics were 40 male and 40 female patients of Sansei Hospital, Kyoto, the mean age of the males being 29 years, 5 months and females 28 years, 3 months old. They were diagnosed by psychiatrists, and are receiving Morita's system of therapy. Their school career was a little longer than that of the schizophrenics. For each group only those who had no previous knowledge or contact with the Rorschach were chosen.

Procedure: The experiment was conducted as a face to face examination in a dark room. The original Rorschach Cards (III and VI) were used as the stimulus. The experimental variable was four conditions of exposure time (Dodge-Harvard type tachistoscope) — 10 m sec., 30 m sec., 1 sec. and free exposure. We controlled the sex distribution, and the order of card presentation in each condition, and let no two conditions have the same subject. The following instructions were given: "We shall show you a picture just a short time. It is one which we made by dropping some ink on a sheet of paper and folding it in two, so it is not determined what it seems to be. Please tell us what it seems to you. You may give any number of answers." At the free exposure, besides the usual preliminary remarks, we said: "Tell me what you see, keeping your eyes on the apparatus. You may give any number of answers. When you think you will see

nothing more, you may take your eyes off." Immediately after this instruction, we presented the cards. Just before the presentation we said: "Are you ready?" Inquiry was done after each response on each card, without showing cards to the subjects and then the subjects were asked to draw the response which they have reported. We presented Card III and VI to the same subject through the procedure mentioned above, and asked him to report his introspections. The initial reaction time and the total time for the both cards were measured. The experimenter rated subject's responses on Klopfer's (1954) rating system. Only the initial responses were used in this experiment.

Results

Exposure Level and Location.

As the inquiry in this experiment was done without showing the cards, the complete scoring of location is impossible; yet we have tried to score it as in the ordinal method of Rorschach testing, on the basis of the reproduced pictures and the reports by subjects. In this experiment, W-responses are dominant in each group, and quite a few of D-responses appear with the increase in exposure time. However, as will be discussed later, W-responses become good in quality with the increase in exposure time. We found no d-responses or Dd-responses in the initial responses. The percentage of the frequency of "indefinite-responses" (?) is shown in Table I. The normal group gave almost no indefinite-responses, on either Card III or Card VI, or at any exposure level except 10 m sec. It is interesting that in schizophrenic and neurotic groups, on the other hand, one half of the subjects gave indefinite-responses in 10 m sec.'s exposure, one third in 30 m sec. exposure, and a few even in 1 sec. and free exposures.

Exposure Level and Determinant.

As this problem is not only closely related to the aim of the study, but is also the most interesting point in the result of the experiment, we intend to make a detailed analysis of it.

Table I shows the distribution (%) of determinants at each exposure level in the three groups.

The symbol O represents the least

Table I Distribution of Determinants of Three Groups of Each Exposure Level. (Percentages)

	Group	Normal				Schizophrenic				Neurotic			
	Level	10	30	1	Free	10	30	1	Free	10	30	1	Free
Card	Determinant												
III	F	15	15	0	5	30	35	15	15	45	20	15	25
	M	15	60	90	80	5	15	55	85	10	40	65	60
	FM	25	10	5	5	0	5	15	0	0	0	15	5
	FC	10	0	0	10	5	0	0	0	0	0	0	0
	CF	10	0	0	0	0	5	5	0	0	0	0	5
	FC′	0	5	5	0	0	0	5	0	0	0	0	0
	? O	15	0	0	0	35	20	0	0	20	15	0	0
	? △	10	0	0	0	20	15	5	0	20	10	0	0
	? ×	0	10	0	0	5	5	0	0	5	15	5	5
VI	F	50	60	25	20	35	50	45	20	40	55	65	60
	Fc	15	5	50	70	0	5	30	25	0	0	15	10
	cF	0	0	0	0	0	0	0	0	0	0	5	0
	FK	0	0	0	0	0	5	0	5	5	0	0	0
	FC′	0	25	15	0	5	5	5	15	5	5	0	5
	C′F	0	5	0	5	10	0	5	0	0	0	0	5
	FM	0	5	10	5	0	0	0	10	0	5	0	5
	M	10	0	0	0	5	5	0	5	0	0	0	0
	? O	20	0	0	0	20	25	0	0	30	25	0	0
	? △	5	0	0	0	15	5	0	0	5	5	0	0
	? ×	0	0	0	0	10	0	15	20	15	5	15	15

specialized state of perception, e.g., "I can see nothing more than a flash-light." The symbol △ represents a little more specialized response than the O, though the subject cannot see any systematic figure, e.g., "I can see a dark mass in the lower part and a triangular thing above." The symbol X represents a response in which the subject tells that he sees something but cannot define it. In this case, however, it differs slightly from the rejection in the ordinal method.

Card III.

Among the normal group the distribution of determinants differs significantly between 10 m sec. and 30 m sec., between 10 m sec. and 1 sec., and between 10 m sec. and free exposure level ($X^2 = 9.760$, df $= 4$, $p<0.05$; $X^2 = 23.120$, df $= 4$, $p<0.01$; $X^2 = 18.160$, df $= 4$, $p<0.01$). Differences in perception of M significant at 1% level were found between 10 m sec. and 30 m sec., 10 m sec. and 1 sec., and 10 m sec. and free exposure. ($X^2 = 6.826$, $X^2 = 19.649$, $X^2 = 14.436$). On Card III, the movement factor generally plays the leading part. It does not differ significantly from other factors at shorter exposure levels, but with increased exposure the differences become notable. Among schizophrenics, the distribution of determinants showed significant differences at the 1% level between 10 m sec. and 1 sec., 10 m sec. and free exposure, and 30 m sec. and free exposure ($X^2 = 21.920$, $df = 4$; $X^2 = 28.200$, df $= 3$; $X^2 = 21.400$, df $= 4$); and a significant difference at the 2% level between 30 m sec. and 1 sec. ($X^2 = 21.400$, df $= 4$). As shown in Table I schizophrenics resemble normals in that the movement factor is far dominant over other factors. However, in the temporal genetic process, they are different from normals. Normals give over 50% of M-responses at 30 m sec., while schizophrenics do not attain this number of M-responses until 1 sec.

Differences in the frequency of M-responses were significant at the 1% level between 10 m sec. and 1 sec., 10 m sec. and free exposure level, and 30 m sec. and free exposure level ($X^2 = 9.642$, $X^2 = 22.727$, $X^2 = 16.900$). The difference between 30 m sec. and 1 sec. ($X^2 = 5.384$) is significant at the 5% level. The lack of difference between the exposure levels of 10 m sec. and 30 m sec. is due to the dominance of indefinite-responses at shorter exposure levels. In the neurotic group the distribution of the frequencies of determinants is about the same as in the schizophrenic group. Significant differences in M at the 1% level were found between 10 m sec. and 1 sec., and between 10 m sec. and free exposure level ($X^2 = 10.666$, $X^2 = 8.901$). One of the characteristics of this group is that indefinite-responses and F-responses are dominant at shorter exposure levels, and as the exposure time grows longer, these two kinds of ressponses decrease and M-responses increase.

Finally we will refer to the differences in the distribution of determinants among the three groups at each exposure level. Between normals and schizophrenics significant differences were seen at 10 m sec. and 30 m sec. ($X^2 = 11.680$, df $= 4$; $X^2 = 10.973$, df $= 4$). Between normals and neurotics a significant difference at the 1% level was found only at 10 m sec. ($X^2 = 13.320$, df $= 4$.) No difference was found between schizophrenics and neurotics.

Card IV

Among normals, significant differences at the 1% level were found in the distribution of determinants between all exposure levels, except between 1 sec. and free exposure ($X^2 = 12.480$, df $= 4$ (between 10 m sec. and 30 m sec.); $X^2 = 13.400$, df $= 4$ (between 10 m sec. and 1 sec.); $X^2 = 15.960$, df $= 4$ (between 10 m sec. and free exposure); $X^2 = 11.560$, df $= 3$ (between 30 m sec. and 1 sec.);

$X^2 = 18.800$, df $= 3$ (between 30 m sec. and free exposure.) That is to say, the characteristic tendency of this group in the distribution of determinants is that F-responses are dominant at shorter exposure levels, and as the exposure time grows longer, F-responses decrease and Fc (cF) -responses increase. The differences in the frequency of Fc (cF) -responses were significant at the 5% level between 10 m sec. and 1 sec. ($X^2 = 4.102$), and at the 1% level between 10 m sec. and free exposure level, between 30 m sec. and 1 sec., and between 30 m sec. and free exposure level ($X^2 = 10.230$, $X^2 = 8.025$, $X^2 = 15.360$). Besides, it is noteworthy that indefinite-responses occur only at 10 m sec., and that FC′ (C′F) -responses are rather frequent at the shorter exposure levels. In the schizophrenic group, the distribution of the frequencies of determinants shows significant differences only between 10 m sec. and 1 sec., and between 10 m sec. and free exposure level. These significant differences can be attributed to the decrease of indefinite-responses and the increase of Fc (cF) -responses occurring with the increase of time of exposure.

As for the differences in the frequency of Fc (cF) -responses among the exposure levels, significant differences at the 5% level were seen between 10 m sec. and 1 sec., and between 1 sec. and free exposure level ($X^2 = 4.629$). In neurotics, the distribution of the frequencies of determinants showed no significant differences among the exposure levels. F-responses and indefinite-responses are dominant at all exposure levels. We can find scarcely any Fc (cF) -responses, which play leading parts in the other two groups, except for a few appearing at 1 sec. Though indefinite-responses tend to decrease with the increase of the time of exposure, it is a characteristic of the neurotic group that some indefinite-responses can be found even at 1 sec. and free exposure.

The differences in the frequency of indefinite-responses were significant only between 10 m sec. and free exposure. ($X^2 = 4.222$, $p<0.05$). Comparing the three groups on the distribution of the frequencies of determinants at each exposure level, we found a significant difference at the 5% level only at 30 m sec. between normals and schizophrenics ($X^2 = 10.040$, df $= 4$). Between normals and neurotics significant differences at the 5% level were seen at 30 m sec. and at 1 sec. ($X^2 = 11.600$, df $= 4$; $X^2 = 10.480$, df $= 4$); and at the 1% level at free exposure. ($X^2 = 16.320$, df $= 4$). Between schizophrenics and neurotics, no significant difference was found at any exposure level, and this tendency is the same as on Card III.

Exposure Level and Content.

As for the content of responses to Card III, H is conspicuous at every exposure level in all the three groups. Most of H are related to the determinant M, and they increase as the exposure time grows longer. Besides H, (H) and (A) abound. Content range has a tendency to decrease to some degree with the increase of the time of exposure.

On Card VI normals give many Arch. at 30 m sec., and they center on Aobj. at 1 sec. and free exposure. In schizophrenics and neurotics on the other hand, the contents of responses center on A, Pl, Obj., instead of Aobj. In all the three groups, many ship-responses appear.

Discussion

First, in location, W-responses were overwhelming in number. This tendency confirms the results of preceding studies. We can state three factors that cause this tendency. 1) We used the initial response. In the initial response subjects tend to see the whole; and D-responses are often given in and after the second response; for instance, responses on the red-colored part of Card III and those on the upper part of Card VI appeared in the second response. 2) The use of a tachistoscope. In this method, the stimulus cards are presented in a frame and

the subject receives the stimuli at a longer distance than in the original method -- the depth of a tachistoscope being 65 cm — and consequently, each picture is apt to be perceived as a whole. 3) Gestalt of Card III and Card VI. Both cards have configurations which tend to evoke whole responses. There are experimental studies by Klein & Arnheim (1953) and by Kataguchi (1960) on the stimulus value of cards, but this problem will be reexamined after the completion of the experiments on all the cards.

Undeutsch (1942) says that the perceptual process, under a condition where a visual stimulus is presented with its clearness gradually growing, can be divided into four stages. 1) The whole stimulus is perceived in a disorderly and undifferentiated state. 2) The figure and the ground of the stimulus are differentiated. 3) The content of the stimulus is perceived with stable organization and clearness. 4) Various modifications are added to the percept. Meili-Dworetzki (1956) carried out an experiment using six ambiguous figures (W or D) of her own design, and concluded that the perceptual development toward the differentiation of configural data has three main stages: a) globalization, b) analysis and c) synthesis [W→D→(W+D)].

These ideas of the perceptual process might be adapted to the Rorschach. In our study, the scoring of form level as in the ordinary method was impossible; nevertheless, judging from the pictures which the subjects drew at inquiry and their interpretation of them, it is inferred that the perceptual range gradually becomes detailed with the increased exposure time. Comparing the normals with the abnormals, we found that as exposure time increases the normals' perception tend to progress from an initial amorphousness and vagueness to specificity and integration, while the schizophrenics' perception, on the other hand, tends to remain at the initial undifferentiated level. This fact entirely tallies with the consideration by Phillips and Framo (1954). It is also supported by Friedman (1952) that abnormals have quite undifferentiated perception. He has reported that, in analyzing Rorschach protocols of thirty schizophrenics, thirty normal adults and thirty normal children on a scale of amorphousness-specificity-differentiation and organization, he found more amorphous, confabulatory and minus whole responses in schizophrenics than in normals. And the proportion of vague whole responses among all whole responses was significantly higher in the schizophrenics than in the normal adults. A similar conception of vagueness in the perception of schizophrenics can also be applied to their thought. Studies of schizophrenics show more references to their thought than to their perception; but it would be well-advised to study thought through perceptual process. In our experiment, the process from the subject's cognition of the ink-blot until he associates it with something and gives some response may be regarded as the process of thought, as well as of perception. As is shown in Table I, we have classified indefinite-responses (?) roughly into three stages, signified by symbols O, △ and X. It will be quite interesting if we can scrutinize the subjects' process of thought in the stage signified by symbol △. One subject may go no further than the mere perception of ink-blots; another may try hard to unify his images and to associate them with something; and another subject's image may prevent the formation of association. In these cases the problem of the subject's preparatory set should be taken into consideration. However, as we find fewer variations in set in tachistoscopic presentation than in the ordinary method, this problem may be left out of account. Our chief concern is in how images are involved in the genetic process of perception. Naruse (1960) remarks, as the result of his experiment on association, that

in order to understand the subjects' process of association, we should rather regard it as a chain of stimulus words→images→responses, than as a chain of stimulus words→responses. This remark has given some suggestions to our study, despite the fact that our experiment employed visual stimuli instead of verbal stimuli. Vanderplas (1959) showed his subject one hundred and eighty random figures for three seconds each, and instructed him to respond in any one of these three ways: a) Any association word, b) "No" (He can recognize nothing.), and c) "Yes" (The figure is likely to be associated with something.). It is quite significant that he paid special attention to the "Yes" responses. Since this "Yes" stage is a process where imagination and perception coexist and which has the most important meaning, we can concur with him in paying particular attention to it.

Next we shall discuss M-responses. Although, in Stein's (1949) experiment mentioned above, no fixed relation was found between the M-response and exposure time, our experiment showed M-responses to increase with exposure time. Besides, it is noteworthy that as shown in Table I, there is a temporal discrepancy in the appearance of M-responses between the normal and the two abnormal groups. This discrepancy, together with the difference in the appearance of FC-(CF)-responses seen in the preceding experiment, will become an important clue in developing the tachistoscopic study of the Rorschach cards. Though M-responses are considered the most important clue in Rorschach diagnosis, there are many questionable aspects in its conception and in its scoring. There are two contradictory conceptions of M-response. The one emphasizes kinaesthetic experience. Rorschach (1921) says that the M-response is scored for movement which is perceived in the ink-blot, and that it has nothing to do with rhetorical embellishment. This kind of interpretation, that M-response is the projection of the subject's kinaesthetic experience upon the ink-blot, is supported by Rust (1948), Sarason (1954), Meltzoff (1953), and many other students. The other conception emphasizes the aspect of secondary association. King (1958) and Singer (1950) studied the M-response in reference to fantasy. Levy (1955) says, "M-response is best understood as a rhetorical embellishment or secondary association." On the basis of our present experiment, we would like to take an eclectic position on the M-response. The M-response appeared in connection with briefer exposure, and is based on the projection of subject's kinaesthetic experience upon the ink-blot. However, as exposure time becomes longer, the M-response is apt to be formed as a secondary association. But our position is not conclusive. We shall consider it after the completion of the same experiment on all ten Rorschach cards.

Next we shall consider the shading response. There are almost no shading responses in any of the three groups at such short exposure levels as 10 m sec. and 30 m sec. We can explain this fact from the viewpoint of the studies on development that shading responses begin to appear with the differentiation of perception; but besides the use of a tachistoscope can be regarded as another important factor. According to Klopfer, the shading response is based on the perception of texture on the card. Fox (1958) says that the shading response has relation to need for physical contact, judging from the fact that a seven-and-a-half year old subject of his experiment reported, "all this stuff makes my finger think it's furry," moving with his finger all over the shading of Card IV. Under the condition of our experiment, however, it is impossible to touch the card. We do not wholly accept the assumption that shading responses are a means of managing affectional need or an index of need for physical contact. In the future we shall try experi-

mentally to test these interesting clinical observations. In our experiment the neurotics gave almost no Fc-responses; significant differences in the numbers of Fc (cF) -responses were seen between the normals and each of the two abnormal groups, and no significant differences could be seen between the schizophrenics and the neurotics. The tendency for the abnormals to give few shading responses is consistent with clinical observations. Since shading is perceived in a differentiated stage of perception, this perceptual regression in the abnormals may be due to their emotional disturbance. However, we cannot judge from this experiment alone whether they completely lack the ability to perceive shading, or, in spite of having perceived it, they avoid accepting it as a determinant.

Though we were not greatly interested in content analysis in this study, it is noteworthy that a considerable number of ship-responses appeared on Card VI. Locations of these ship-responses were mostly W, and the determinant was F. According to Phillips and Smith (1953), vehicle-responses—they call them "travel-responses"—are seldom given by the well-adjusted normals, while immature people and schizophrenics often give them. It is consistent with their assumption that in our experiment there were many ship-responses in the indifferentiated stages of perception, namely, at shorter exposure levels, and the schizophrenic group gave the greatest number of ship-responses of all the three groups. In the normal group, many tower-responses appeared at the exposure level of 30 m sec. Since many house-responses appeared in Kraus's (1956) experiment in which the degrees of shading contrast were varied, we might safely conclude that under the vague or the tachistoscopic presentation of stimuli, the content of responses often tends to be infantile or primitive.

Finally, we want to make reference to the effects of the experimental situation on the subjects. Under the condition of our experiment, cards were presented only for an instant while in the ordinal method of Rorschach test the time of presentation is not limited. Hence the subjects might think that they were required to respond quickly. The "reaction time" was actually quite short in all the groups. For example, even in the group which had the longest reaction time of the three groups, the average initial reaction time at the exposure level of 1 sec. is twelve seconds. In all three groups, the interesting fact is that the standard deviation of the average reaction times was comparatively small; and there were scarcely any such differences as are seen in the ordinal Rorschach test either among individuals or among cards. This fact suggests that the subject's mental set in this situation is considerably different from that in the ordinal method. Especially for patients who have a serious emotional problem, this comparatively impersonal method where the tester is invisible might be a more comfortable situation. This observation is supported by the fact that there are almost no rejections of cards as are seen in the ordinal Rorschach test. Stein has given an original view of how the subject's mental set acts upon the perceptual function in the Rorschach from the viewpoint of defense mechanism. But in order to study the defenses, a more detailed experimental study will be required.

There is also an inevitable problem of visual adaptation when a tachistoscope is used. However, we did not deal particularly with this problem, regarding it as a factor which acted equally on all the subjects so far as this experiment was concerned.

SUMMARY AND CONCLUSION

We intended to analyze the developmental process of perception by means of the tachistoscopic presentation of Rorschach cards III and VI. The subjects were normals, schizophrenics and neurotics, 80 males and

females for each group. The times of presentation were: 10 m sec., 30 m sec., 1 sec. and free exposure. The major results are as follows:

1) W-responses were the dominant locations at all exposure levels in each group.

2) The schizophrenic and neurotic groups gave more indefinite-responses at longer exposure levels.

3) M-responses appear comparatively late under tachistoscopic presentation. With increased exposure time, they begin to appear markedly. In the normal group only, M-responses are found at comparatively short exposure levels.

4) Fc (cF) -responses generally are more frequent at longer exposure levels. Normals alone give a considerably large number of Fc (cF) -responses at shorter exposure levels.

5) H is the dominant content on Card III in all the three groups. On Card VI, among normals, Arch. (especially "tower") appear markedly at the exposure level of 30 m sec.; at 1 sec. and free exposure level, responses are predominantly Aobj. In the schizophrenic and neurotic groups, on the other hand, responses are largely A, and Pl., obj., instead of Aobj., at all the exposure levels.

These results are considered from the viewpoint of microgenetic theory. We can conclude that there exists a significant correlation between the temporal factor and the perceptual process with Rorschach cards, and that normals, schizophrenics and neurotics have characteristic perceptual processes.

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Epileptic Personality and Cognitive Functioning[1]

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The concept of an "epileptic personality" is an ancient one. Over the years, a vast conglomeration of traits has been described as characteristic of the epileptic. With twentieth century advances in diagnostic and therapeutic techniques, and increasingly eclectic attitudes toward the mental, emotional and social problems of epileptics, most patients whose major problem was seizures have emerged from a back ward existence to outpatient status, many of them carrying on their normal functions in the community with little visible handicap due to their dysrhythmia.

However, systematic investigations which have recognized the heterogeneity of the etiology of epilepsy, which have limited their conclusions to the particular kind of epileptic *S* sampled, and which have attempted to define that sample and screen out the effects of the epiphenomena of epilepsy, still yield results with basic contradictions as to the nature, cause, and even existence of characteristic epileptic traits. (Delay *et al*, 1958; Folsom, 1953; Pruyser, 1953).

While it has become obvious that all epilepsy does not necessarily lead to deterioration, as was formerly thought, the question remains to what extent does cerebral dysrhythmia parallel mental or emotional deviation from the norm?

One of the main reasons for the apparently conflicting nature of the answers to this question is the complexity of obtaining adequate controls. Because of the practical difficulties involved, most investigators have attempted to control what they consider the relevant variables by statistical methods alone, although an individually matched control design would be more powerful in discriminating different types of epileptics from each other and from those with no history of cerebral dysrhythmia.

Conclusions have been drawn without sufficient evidence as to how much of the symptomology of different types of epileptics would also be found in well-matched *S*s with no history of cerebral dysrhythmia, i.e., how much of the symptomology of the epileptic is actually either primarily or secondarily related to the dysrhythmia itself. The present study is an attempt to explore this problem. It is concerned primarily with the question "Can significant differences be found between the psychological test performance of epileptic *S*s whose primary symptoms are seizures, and their individually matched nonepileptic controls?"

Subjects. Twenty-six outpatient epileptics were individually matched with 26 *S*s with no history of epilepsy. The match was perfect for race and sex, and very close for age, IQ, education and socio-economic status.

All the epileptic *S*s had abnormal EEGs, 10 with generalized abnormal activity over both hemispheres, 10 with left hemisphere foci (of which 7 were left temporal), 5 with right hemisphere foci, and 1 with multiple temporal foci.

None of these *S*s had ever been institutionalized. None showed grossly incapacitating psychiatric prob-

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TABLE I Composition of Epileptic and Control Groups as to Age, Sex, Race, Education and I.Q.

	Epilepsy	*Control*
Age		
Mean	29.9	29.8
Range	9-68 yrs.	10-63 yrs.
s	15.5	14.9
Sex		
Male	13	13
Female	13	13
Race		
Negro	5	5
White	21	21
Education		
Mean	10.2 grade	10.5 grade
Range	4-16 grades	4-16 grades
s	3.1	3.7
IQ (Full Scale)		
Mean	101.2	102.9
Range	77-126	86-129
s	13.3	11.4
Verbal IQ	100.7	103.5
Perf. IQ	101.5	102.1

lems. None was mentally defective or showed clinical evidence of cerebral organic pathology other than dysrhythmia. A more complete description of these *Ss* may be found in a paper reporting negligible mental and emotional side effects from their anticonvulsant medication. (Loveland *et al*, 1957).

In no case did overt seizures occur during test administration. Thus the samples of behavior of the epileptics studied here represent the interseizure functioning of *Ss* leading relatively normal lives in the community, despite the fact that most of them were still having, or had histories of frequent and/or severe seizures. Since no EEG readings were taken for the control *Ss*, it is of course possible that some of them may have had more than average tendency to cerebral dysrhythmia. No EEG readings were taken during testing, but it seems reasonable to assume that whatever abortive bursts did occur were primarily if not entirely among the *Ss* with histories of overt seizures.

Procedure. The battery of ten psychological tests was administered by the author in one session in the order cited in Appendix A. Wherever possible, test performance was analysed not only for *what* the *S* achieved, in terms of standard score, but also for *how* he achieved what he did. Two main procedures were used for comparing the epileptic with his individually matched non-epileptic control: a) the two groups were compared in regard to the variables listed in Appendix A, and b) the Rorschach protocols were submitted to experts for blind comparison and selection of the epileptic of the matched pairs. In addition, the epileptic group was subdivided as to etiology, nature of EEG abnormality, age of onset, duration and frequency and severity of seizures, and the differences between the resulting sub-groups and their matched controls were compared. For all statistical analyses, significance in this paper means the .05 level of confidence or better.

The clinicians' blind analyses of the Rorschach protocols were handled as follows:

1. The Rorschach protocols were submitted to an expert for blind selection of the epileptic from each of the 26 matched pairs, with no suggestions furnished as to the nature of the criteria to be used.

2. The author and this consultant then each independently made an a posteriori analysis of differences between matched pairs. On the basis of these findings, the author set up 20 criteria which seemed useful in differentiating the epileptic from his control.

3. The Rorschach protocols were submitted to a second Rorschach expert for blind selection of the epileptic from each of the 26 matched pairs on the basis of the 20 a posteriori criteria.

4. Three months later, the 26 matched pairs were again submitted to the second consultant with a slightly modified set of criteria and instructions, for blind selection of the epileptic.

At the time of her first selections, she did not know that she would be

asked to repeat the process and later reported no recall of her earlier selections. This step then affords a measure of the reliability of repeated blind selections by the same judge, after allowance is made for the effect of the modification in criteria and instructions.

5. The 26 matched pairs were submitted to a third Rorschach expert for blind selection of the epileptic of each pair, using the modified criteria.

6. The author compared the 26 pairs of unlabelled protocols on the basis of the modified criteria. There was so much familiarity with the protocols that this step in the procedure must be considered an a posteriori selection for all practical purposes.

Results. An overwhelming majority of the psychological test scores showed no significant differences between the epileptics and their individually matched controls (two tailed t test). The very few significant differences which were found occurred in intelligence and psychomotor, not in personality test scores.

Similarly, from qualitative analysis of the Rorschach test performance, no personality characteristics were found which differentiated the two groups significantly better than chance. On the contrary, there was striking similarity in personality structure between the epileptic and his nonepileptic control individually matched for race, age, education, IQ and socio-economic status.

It *was* possible for expert clinicians, using a posteriori criteria gleaned from these same Rorschach protocols, to make blind selections of the epileptic of the pair with validity and reliability significantly better than chance but it was on the basis of the criteria concerned with the way the *S* communicated and organized his perceptual-associative processes and not on the basis of personality types or characteristics.

Many of the traits reported by other investigators as characteristic of different types of epileptics *were* found in the group of epileptics studied here, but not significantly more often than they were found among their nonepileptic controls. Thus when an individually matched control group is used, findings supposedly pathognomonic of epilepsy usually turn out to be equally typical of the control group.

Results from the analysis of scores. Of the 120 test scores analysed, only 6 differentiated the two groups significantly better than chance. (Table II). In the following 4 of these 6 test scores the epileptics proved inferior to their controls:

1. Wechsler-Bellevue Verbal IQ.
2. The Wechsler-Bellevue digit symbol weighted score.
3. The number of digits repeated forward correctly.
4. The Level of Aspiration test achievement score—i.e., the total number of squares filled with "X" 's within a given time.

In the following two of the six scores which differentiated the two groups significantly better than chance, the epileptic group proved superior to their matched controls.

TABLE II Test Scores Which Differentiated the Epileptic Group from the Non-Epileptic Control Groups Significantly Better than Chance

	Mean Score		*Standard Deviation*		*t*	*Level of Significance*
	Epileptics	Controls	Epileptics	Controls		
1. Verbal IQ	100.7	103.6	12.3	9.9	−2.1	.05
2. Digits Forward	5.8	6.8	1.2	1.0	−3.4	.01
3. Digit Symbol	8.2	10.7	2.7	2.5	−5.0	.01
4. Picture Completion	8.7	7.2	2.8	2.3	+2.5	.05
5. Reading Errors	0.9	2.6	1.3	3.7	−2.3	.05
6. Achievement Score: Level of Aspiration	64.4	75.3	9.8	11.1	−2.5	.05

1. The Wechsler-Bellevue picture completion weighted score.
2. Errors in reading aloud the Wechsler Memory for Story B.

When the epileptic Ss were subdivided as to etiology, type of EEG focus, age of onset, duration, frequency and severity of seizures, the result from analysis of variance of the differences between the scores of these subgroups and their matched controls were all negative.

Thus the findings from analysis of scores are largely a catalogue of negative results. Any or all of the few positive results may prove to be spurious on cross validation since 6 out of 120 tests might easily come out "significant" by chance.

The effect of research design on results is strikingly illustrated in this study since it is the evidence from the individually matched controls which accounts for a large part of the negative findings. That is, traits elsewhere reported as characteristic of epilepsy *were* found among the epileptics studied here but turned out to be equally typical of their individually matched controls. For example, the majority of the epileptics studied here, like the out-patient epileptics of Delay, *et al* (1958) and the institutionalized epileptics of Guirdham (1935) show a tendency toward either coartated or extraversive Rorschach experience balance. The epileptic and nonepileptic groups studied here do

TABLE III Proportion of Subjects in Epileptic and Non-epileptic Groups Falling in Each Experience Balance Category

Rorschach Experience Balance	Ambulatory Epileptics (Delay, et al) N=50	Institutional Epileptics (Guirdham) N=132	Outpatient Epileptics (Loveland) N=25	Individually Matched Controls (Loveland) N=25
Coartative	48%	62%	24%	28%
Ambiequal	4	8	16	12
Introversive	8	10	24	28
Extroversive	40	20	36	32

TABLE IV Proportion of Subjects in Epileptics and Non-Epileptic Groups Showing Piotrowski's Organic and Epileptic Signs

Signs	*Epileptics* Delay, et al N=50	*Epileptics* Piotrowski N=25	*Organics* Piotrowski N=18	*Epileptics* Loveland N=25	*Matched Non-Epileptics* Loveland N=25
$1 > 1'$	70	40	78	20	4
$< 2M$	86	84	94	48	48
1 or more C_n	8	24	44	12	0
$F + \%$	34	60	72	48	44
$pc_{\%}$	48		55	48	44
Repetition	38	68	83	60	40
<15 Responses	54		67	24	20
Impotence	58		44	16	12
Perplexity	70		39	56	32
Automatic Phrases	52		39	64	44
5 or more Org Signs	68		94	40	16
$P < 5$	74	48		52	24
Meticulosity	40	84		32	16
Description	30	44		20	8
Symmetry	22	44		12	20
Comment	64	72		36	24
< 5 or $> 10W$	48	72		44	36
Mean $_t > 20''$	62	48		28	12
C Shock	20	60		20	12
Hostility	30	40		36	28
7 or > Epilepsy	48	80		20	12

not differ significantly in this respect (Table III) and the experience balance distribution of the epileptics is much more like that of their non-epileptic controls than like the other groups of epileptics.

Similarly, many of Piotrowski's (1937) organic and epileptic signs *are* found to a greater extent among the epileptics studied here than among their individually matched controls (Table IV) but neither individually nor collectively do these signs differentiate the epileptics from their controls significantly better than chance, and the epileptics studied here are usually more like their controls than like the epileptics and organics of Piotrowski and the epileptics of Delay *et al.* in these respects.

In only a small minority of the negative results were traits reported elsewhere as characteristic of epileptics found to be uncharacteristic of the epileptics studied here. For example, the bipolar Rorschach dimension of Delay *et al* (1958, p. 196) neither differentiates the epileptics from the nonepileptics in the present study, nor appears to be a meaningful dimension for either the epileptic or the nonepileptic group studied here, since 70% of both groups fall at neither pole.

Results from qualitative analysis. As in the case of the test scores, when one looked for qualitative differences between the test performance of the epileptic and his nonepileptic control, the overwhelming majority of the findings were negative.

More epileptics (Hovey & Kooi, 1955) than nonepileptics (Folsom, 1953) seemed unsure as to whether they were right or wrong on the Wechsler-Bellevue block design test, more epileptics (Guirdham & Oxon, 1935) than noepileptics (Devos, 1952) gave one or more of the kind of responses defined by Kooi and Hovey (1955, 1957) as NR responses in the Wechsler-Bellevue test, but neither of these differentiated the two groups significantly better than chance. On such Wechsler-Bellevue sub-tests as Vocabulary, Information, Comprehension, and Similarities, as well as on the Wechsler memory for stories test, the quality of the verbal communication of the epileptics showed less continuity and seemed, in general, less polished than that of the nonepileptic controls. However, the evidence for this was extremely complex and varied. No differentiating characteristics were found which were reasonably simple, yet sufficiently well defined to be quantified and tested for significance.

When the Rorschach protocols were submitted to an expert for blind selection of the epileptic from each matched pair and the expert was given no criteria for selection, only 56% of the selections were correct. This is consonant with the negative results obtained with Piotrowski's organic signs (1937) in that this consultant reported that she had selected as the epileptic of the pair the one who looked more organic or, failing that, the sicker looking protocol.

After a posteriori comparison of the Rorschach protocol of the epileptic with his matched control, however, the author and this same consultant independently concluded that despite very close similarity between matched protocols, there was a consistent tendency for the quality of the performance of the epileptic to be inferior to that of his matched control. Further, there was considerable agreement between them as to the nature of the differences between the two groups. Definition of 20 criteria thus derived which appeared to be more characteristic of the epileptics than of their nonepileptic controls, as well as the instructions given to the judges for their use in blind selection of the epileptic of the matched pairs, will be found in Appendix B.

Using these instructions and criteria, the author's a posteriori selection of the epileptic of the matched protocols was 85% correct.

As for the communicability of these apparently differentiating characteris-

TABLE V Percentage of Correct Selection of the Epileptic from Matched Pairs of Rorschach Protocols by Three Clinicians using the Same Criteria

	Author (*a posteriori*)	Consultant II (blind) First Selection	Consultant II (blind) Second Selection	Consultant III (blind)
Final Selection	85%	69%	73%	69%
Communication	77	69	69	65
Perseveration	62	58	65	62
Sureness	46	62	69	62
Personality	46	50	54	62

TABLE VI Percentage of Agreement among Clinicians

	Agreement among Author and Two Consultants	Agreement Between Two Consultants	Repeated Selections of Same Consultant
Final Selection	81%	88%	81%
Communication	73	77	81
Perseveration	50	69	54*
Sureness	50	69	77
Personality	37	50	58*

* See Footnote 4

ties gleaned from a posteriori comparisons, both consultant Rorschach experts who used these criteria selected the epileptic of the pair with significantly better than chance success (Table V) and reliability (Table VI).

That the reliability of repeated blind selections by the same clinician using these same instructions would be considerable is suggested by the fact that one of the consultants made the same selections after a 3 month interval in 21 of the 26 cases, or 81% of the time, even though the criteria and instructions used the second time were not exactly the same as the first.[2]

This level of communicability and reliability occurred primarily in the final selections. Among the 20 criteria there was considerable variation in the extent to which the three clinicians using the same instructions and criteria considered the evidence sufficient to allow a choice between matched pairs. When they *did* agree that a criterion was applicable, their choices were usually the same. In the case of the four personality items included among the criteria, however, even where the two consultants agreed that a choice was possible, they often disagreed on the choice made.

However, the unreliability of the judgments about personality is more apparent than real. All four clinicians independently reported being impressed by the similarity in personality structure between Ss matched, as these were, for factors other than personality. All independently reported more forced choices on the personality items than on any of the others, that when one of a matched pair showed, for example, obsessiveness, isolation, anxious unsureness, etc., the other was apt to show similar evidence to almost the same degree and in almost the same way. Thus the important finding here seems to be the a priori *agreement* between independent judgments that the personality differences were minimal, rather than the recognized unreliability of the a posteriori forced choices.

No single criterion differentiated the two groups with better than chance validity *and* reliability. Thus here, as in other diagnostic and predictive Rorschach studies (Loveland

[2] Amount and quality of organization, subsumed under "Perseveration" was omitted from, and clarity of personality structure was added to, the criteria after her first selections and before her second. This same modified form of the criteria was used for the blind selections of the third consultant and by the author.

& Singer, 1959) it was possible for clinicians to make more valid and reliable judgments from a constellation of criteria than from scoring any one of them.

When the epileptic group was subdivided for etiology, EEG abnormality and the dimensions of their overt seizures, no relationships were found between them and the clinicians' success in selecting the epileptic from his individually matched control. (Chi-square test).

Discussion

While this sample of epileptics and this battery of tests are obviously too limited to justify the generalization that etiology, nature of EEG abnormality, age of onset, duration, and frequency and severity of overt seizures are unrelated to personality and cognitive functioning, we do have a piling up of evidence that the qualities for which these paired *S*s were matched are far more important in determining their performance in the tests used here than are the above dimensions of their epilepsy.

Whatever differences may exist within and between these two groups we know that all the experimental and none of the control *S*s had overt seizures. Thus where no significances were found between the test performance of the epileptic and nonepileptic groups, the conclusion seems justified that such test performance is related neither to seizures nor to any other difference between the two groups. Further, for most of the 120 scores analysed, the absolute differences between the two groups were very small and did not even approach significance at the .05 level of confidence. Thus, it appears unlikely that replication with a larger sample of similarity chosen epileptics would bring enough differences above the threshold of significance to modify the conclusion that, for the most part, their interseizure functioning as measured by scores is indistinguishable from that of their individually matched nonepileptic controls.[3]

It is in attempting to interpret the relatively few differences that *were* found between the two groups that more questions are raised than answered. For example, will these differences persist when other similarly chosen epileptics are compared with their nonepileptic individually matched controls? How many of these same differences would appear also between groups whose major symptoms are schizophrenia or brain damage without epilepsy or some other pathology, and their individually matched controls? How many of these positive findings would disappear if such variables as the meaning of the examination to the *S* were better controlled? The *S* who takes these tests because he is seeking relief from a disturbing pathological symptom may perform very differently than if he were graciously consenting to serve as a control.

Even if a positive finding should prove to be pathognomonic of dysrhythmia, the nature of the relationship remains to be clarified. For example, how much of the apparently impaired interseizure functioning of these epileptics was due to the interference of current abortive bursts with current continuity of functioning? How much to earlier interference with acquisition of verbal, motor, and other skills? Can these be prevented or com-

[3] This same battery of tests was readministered to those same *S*s after a 3 month interval and again after a year, for the purpose of assessing the side effects of continuous anticonvulsant medication introduced immediately after the first tests were administered. The results from analysis of the retest changes support the findings of the present study that for the most part the test performance as measured by scores of the epileptic group is not significantly different from that of their matched controls. Neither the seizures, the anticonvulsant medication nor any other differences which may have existed between the epileptic and nonepileptic group produced significantly different practice effects. (Loveland, Smith & Forster, 1957).

pensated for, or will there always be a small remnant of inferior functioning inherent in brains with tendency to dysrhythmia which would be irreversible no matter how early or complete the seizure control? Does performance vary with the nature of the epilepsy as is suggested by the finding of Kooi and Hovey (1955, 1957) that bilaterally synchronous abortive bursts may affect Wechsler-Bellevue test performance differently from focal abortive bursts? Do abortive bursts vary as to the transient disorganization in activity which they produce in areas of the brain other than the region of abortive discharge? One can assume no simple relationship between the dimensions of the overt and of the abortive seizures, so that neither this nor any study which does not include EEG recordings during testing can interpret its positive findings adequately. However, the following discussion may partially clarify the significance of the few positive results found in this study:

1. Verbal IQ: Since lower verbal than performance IQ in the Wechsler-Bellevue test has been associated repeatedly with left hemisphere, and more specifically with left temporal epilepsy (Klove, 1959; Milner, 1956; Reitan, 1959), the question arises whether the lower verbal IQ found for this epileptic group as a whole as compared with the control group may be due to the fact that 10 of these *Ss* had left hemisphere EEG loci, (7 of the 10 being left temporal) whereas only 5 had right hemisphere EEG abnormality (2 of the 5 being right temporal). However, there was no more tendency among the left hemisphere or left temporal *Ss* to show Verbal IQ lower than their matched controls, than among *Ss* with right or no focal EEG abnormality. Further, there was no more tendency among the *Ss* with left focal EEG abnormality, hemisphere or temporal, to have lower verbal than performance IQs or poorer verbal communication as judged by the clinicians, than among those with right or no focal EEG abnormality.

Contrary to the evidence of Capps (1939) and Winfield (1951) that seizures alone are not associated with impairment on their series of verbal tests, however, the epileptics studied here showed a constellation of evidence of greater difficulty with verbal tasks and communication than their nonepileptic controls. To the extent that the *Ss* were having abortive bursts which interfered with continuity of brain functioning, one might expect more verbal than performance difficulties. In life as well as in test situations, performance tasks have *reminders* available (cards, blocks, puzzle pieces) which would facilitate recovery from interruptions of continuity of attention. In verbal tasks, however, if one loses one's place, no such reminders are available. Thus continuity may be more easily reestablished on performance than on verbal tasks.

2. Wechsler-Bellevue Digit Symbol weighted score: This ranked lowest of the 11 subtests among the epileptics and highest among the noneplipetic controls, with the difference between their mean scores significant at the .01 level of confidence. Other investigators (Frost; Klove, 1959; Reitan, 1959) have reported low digit symbol scores not only among epileptics with known brain damage of varying extent and locus but also among brain damaged patients without epilepsy or EEG abnormality. Clinical experience with this subtest suggests, also, that it may prove to be relatively difficult for patients with no brain damage, but with certain functional disorders. Thus, even if this difference does hold up under cross validation, more investigation is needed to determine how much of a *Ss* especial difficulty with digit symbol is common to many types of pathology, and how much, if any, is pathagnomonic of dysrhythmia.

3. Number of Digits Forward: Here, as in other investigations (Collins &

Lennox, 1946; Frost; & Lewinski, 1947) digit span was found to be relatively difficult for epileptics, ranking next to lowest among the 11 Wechsler-Bellevue subtests. This was equally the case, however, among the nonepileptic control group, and, according to Wechsler's own findings, digit span is a low ranking subtest among all the age groups over 14. Thus a low digit span weighted score cannot be considered characteristic of epileptics.

The evidence from the present study suggests that it may be profitable to consider digits forward and digits backward separately. One of the most commonly accepted clinical signs of brain damage in the Wechsler-Bellevue test is relatively greater difficulty with digits backward than digits forward, in line with Goldstein's concept of loss of fluidity with brain damage. If the frequently reported finding of low digit span among brain damaged patients, especially those with LT lesions (Frost; Klove, 1959) (12) were due more to difficulty with shifting than with intake or immediate recall, it would not be surprising to find no especial difficulty with digits backwards among *Ss* with little or no brain damage. The mean number of digits correctly reversed by the epileptic group studied here was exactly the same as that of their nonepileptic controls. It was digits forward which differentiated the two groups significantly better than chance, at the .01 level of confidence, but this was no more characteristic of the *Ss* with left hemisphere or left temporal foci than of those with other or no focal EEG abnormality.

Low digit span has often been interpreted as evidence of a memory defect. (See Folsom's review (1953) of this literature). While the digits forward task may well prove to be sensitive to some aspect of the epilepsy itself, such as the interference of abortive bursts with continuity of intake, it cannot be assumed to be evidence of a memory deficit. The negative findings in the present study with respect to immediate and delayed recall of meaningful material contraindicate the hypothesis that there is any generalized memory defect associated with dysrhythmia.

The epileptics of both Milner (1956) and Deutch (1953) differ from the epileptics studied here in that they did show impairment in delayed recall of the same material. However, the performance of Milner's epileptics on the immediate recall of this same material was like that of the epileptics studied here, but differed from the performance of the epileptics investigated by Deutch. Also, the findings of Milner and Deutch were not consonant with each other with respect to other subtests of the Wechsler memory scale. Insufficient information is available to allow adequate interpretation of the differences in findings among the three groups of epileptics but the evidence of the present study makes it clear that memory defect does not necessarily parallel dysrythmia and that further investigation is needed before any kind of memory deficit can be causally related to the epilepsy itself.

4. Level of Aspiration achievement score: This is the only task in the battery of tests used here which involves a primarily motor skill. Kooi and Hovey (1957 reported that they were unable to definitely establish association of motor blocking with bursts. They often found prolonged response time associated with either focal or generalized bursts, but felt that the lengthening of response time could result from either motor blocking or disturbance of mental processes, and in many instances they found the primary defect apparently in the problem solving area. In the task under consideration here, the *S* had only to fill spaces with Xs as rapidly as possible so that the cognitive aspect was minimized. None of the measures of reaction time in this study, however, differentiated the epileptic from the nonepileptic significantly better than

chance, nor does this lowered achievement score appear to be a simple matter of motivation since the score which presumably assesses motivation, derived from this same test, yielded no significant differences between the two groups.

5. Picture Completion test: This ranked among the lowest of the 11 subtests (only digit symbol and digit span were lower) for the epileptic group and lowest for the nonepileptic controls. Among Reitan's (1959) brain damaged groups, its rank varied considerably with the nature of the brain damage and among Klove's (1959) brain damaged group with normal EEG, this test ranked highest. It appears unlikely that this task, which was relatively difficult for both groups studied here, will continue on replication to be handled significantly more adequately by the epileptics than by their nonepileptic controls.

6. Errors in reading: The finding that the nonepileptic group made significantly more errors in reading the arithmetic problems also appears spurious. In the only other measure of accuracy in reading aloud available in this study (Wechsler Memory for Story B) there was no significant difference between the two groups.

7. Clinicians' selection of the epileptics from Rorschach protocols: Although Rorschach scores, as usual, were of no value in differentiating these two groups, the findings from this and other studies (Loveland & Singer, 1959) suggest that a more subtle analysis of the sample of behavior afforded by the Rorschach protocol, capitalizing on the clinician's capacity for complex synthesis, does constitute a useful research device.

The success of even the most expert blind judge, however, is limited to the extent of his knowledge about the population to be selected or predicted. It is not surprising that the first blind selection reported here, based as it was primarily on organic signs of gross brain damage, should have failed to differentiate epileptics such as these from their nonepileptic controls.

The better than chance success of the other clinicians indicate both that there is a difference between the Rorschach performance of the two groups, and that these criteria have some usefulness in defining that difference. As they stand, however, none of these criteria can be used as clinical "signs" of epilepsy for the following reasons:

a. Most of these 20 kinds of limitations occurred too often in the protocols of the nonepileptics to be useful to the clinician who has no individually matched control available for comparison.

b. Each of these 20 criteria is only one of a constellation which seldom was the same from case to case. Thus there is no evidence here of any specific set of criteria.

c. Most of the components of this constellation are limitations commonly found in more or less similar form among other types of pathology such as brain damage without epilepsy.

d. Cross validation is especially necessary here where the criteria were derived from the same protocols used to test them.

CONCLUSIONS

1. The personality structure of the outpatient epileptic is strikingly similar to that of his nonepileptic control individually matched for race, sex, age, IQ, education and socio-economic status. No personality characteristics were found which differentiated the epileptic group studied here from their nonepileptic controls significantly better than chance.

2. When adequate individually matched controls are used, not only personality but also cognitive functioning supposedly pathognomonic of epilepsy usually turns out to be just as typical of the control group.

3. The following differences *were* found between the epileptic and the nonepileptic groups studied here:

a. It was possible for Rorschach experts to select the epileptic of the matched pairs with better than chance

validity and reliability from certain aspects of the way the *S* communicated and organized his Rorschach response.

b. In 4 of the 120 test scores analyzed, the epileptic group proved inferior to their nonepileptic controls. These were the Wechsler-Bellevue verbal IQ, Wechsler-Bellevue digit-symbol weighted score, the number of digits the *S* could repeat forward, and the number of squares he filled with an "X" in a given time.

While these differences qualitative and quantitative may be tentatively accepted as *correlates* of epilepsy pending cross validation, broader and more refined controls would be needed to determine which if any are *pathognomonic* of epilepsy.

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APPENDIX A

Scores and Qualities Analysed

1. Wechsler Bellevue Form II or, for those Under 14, Wechsler Intelligence Scale for Children.	Full scale, verbal and performance IQ, weighted scores of the 11 subtests, scatter, number digits forward, number digits backwards, percentage of errors of commission in digit symbol, reaction time in picture completion, NR (no response) answers (Hovey & Kooi, 1955, 1957) sureness on block design,[a] quality of verbal communication.
2. Wechsler Memory for Stories.	For story A (read by examiner to *S*) and story B (read aloud by *S*) separately: Immediate recall, delayed recall, (at end of testing session); difference between immediate and delayed recall, errors of omission, errors of commission, quality of verbalization; story B reading time, story B reading errors.
3. Rorschach Test	Forty standard scores and ratios, amount and quality of organization, DeVos (1952) scores of affective tone of content, Piotrowski's organic and epileptic signs (1937, 1957), Minkowska's liens (1946) and 20 qualities gleaned on an a posteriori basis from the protocols in the present study (Appendix B)
4. Porteus Maze	Raw score, Age-Score ratio, Q Score, Average Time.
5. Level of Aspiration Test[b]	Initial estimate, sum of estimates, achievement, difference between sum estimate and sum achievement, difference between estimate and achievement in 1 and 2, difference between trial 3 estimate and trial 4 estimate.
6. Serial subtractions of 7 from 100	% errors, time per response.
7. Continuous additions (modified) Wells & Ruesch manual)	Number correct, % correct, number attempted, standard deviation of number attempted each half minute (evenness of functioning).
8. Knox Cube[c]	Number forward, number backward, number forward plus and minus number backward.
9. Words in one Minute	Number words, number errors, quality of verbalization, number repetitions.
10. Glad Emotional Projection Test (modified)[d]	Number "pleasant", reaction time.

[a]In addition to the usual instructions, the *S* was asked "Tell me when you are finished." He was tallied as unsure only if comment and response time showed more unsureness than on any other subtest, or if he submitted an incorrect response and did not recognize it as incorrect even after inquiry, or if he changed right to wrong pieces in trying to correct errors during inquiry.

[b]Here *S* was first asked to estimate how many squares he could fill with an "X" in 10", then to do the job. Four successive estimate and achievement scores were obtained. The third time, only 8" was allowed, and the *S* was not informed of the difference in time allowed.

[c]Analogous on a non-verbal level to the Wechsler-Bellevue Digit Span subtest. Here *S* was asked to reproduce patterns of increasing complexity tapped out before *S* by the examiner. As in the Digit subtest, the patterns ranged in complexity from 3 to 9 units. As in Digit Span test, after 2 failures in repetition forward at a given level of complexity a similar series was presented which *S* was asked to reproduce backwards, and the testing continued until there were two failures.

[d]Subject was asked to state whether the pictured person was trying to act out a pleasant or unpleasant emotion.

Appendix B

Instructions given to consultants for blind selection of epileptics: Inclosed are 26 pairs of Rorschach protocols administered by the same person. One of each pair is that of a person who has epileptic seizures. Most of them had their seizures controlled at least to some extent, at the time of test administration, by drug therapy. Another study of these same patients suggests that the side effects of their anticonvulsant medication on their test performance was negligible. The type, etiology, frequency, duration and severity of the seizure varied considerably among the group, but all were outpatients, able to carry on their lives in the community, and none showed organic abnormality or disease other than the EEG abnormality which may be focal or diffuse. The other of each pair is that of a control subject with no history of seizures, brain damage or disease, perfectly matched for sex and race, closely matched for Wechsler-Bellevue IQ, education, age and socio-economic status.

Statistical analysis of Rorschach scores, including content analysis and DeVos affective content scores, did not discriminate the epileptic from the control group better than chance nor did blind judgments by a Rorschach expert who reported that she worked on the hypothesis that the most organic-like and/or the sicker looking record would be that of the epileptic.

A posteriori qualitative analysis of these pairs of records suggests that the epileptic may function on a less matured or polished level of development intellectually and emotionally. In Goldstein's sense, the difference between the two groups appears to be not so much *what but the way* they produced. More specifically, the epileptics seemed to show more evidence of 20 different kinds of limitations (attached) than the nonepileptic. None of these 20 characteristics, however, occurred exclusively among the epileptics.

Analyze the records in the order presented, comparing the two records in each pair with respect to each of the four major categories, and with respect to each of the characteristics subsumed under the four major categories. In those reports where it is difficult to choose between the two, force a decision where possible, indicating all cases where the decision is forced and the reasoning behind your decision. There will of course be cases where a choice cannot be forced, either because the characteristic is present in neither record or, if present in both, where there is nothing to choose between them in a given respect.

Those subheadings which are starred appear especially useful diagnostic signs when they do occur.[4] This should be considered in making your decision on the four major categories and on your final selection of the epileptic protocol. The final selections should be made only after the decisions are made for the four categories. Force a final selection, if necessary, indicating when the decision is forced, and commenting freely.

The epileptic of the pair seemed to show more evidence of the following kinds of limitations:

I. *Communication Limitations*

In the context of the *S*'s vocabulary achievement (which did not significantly differentiate the epileptics from their matched controls), and allowing for personality differences such as anxiety, resistance to the task, natural terseness vs. verbosity, etc. (none of which differentiated the two groups significantly better than chance) the epileptic's communication of his response to the examiner seemed more vague, diffuse, imprecise, than that of his nonepileptic matched control. This does not refer to the definiteness of the content of his response, in which respect no significant differences appeared. The epileptic's communication seemed more vague even when his response had definite form, the control *S*'s communication less vague, even when his response was one of indefinite content. It was usually easier to follow the train of thought of the nonepileptic of the pair for the following reasons:

*1. Communication gaps and ellipses: The epileptic does not seem to know as well what information he needs to communicate to the examiner to put across his ideas. When he changes the subject, he may not alert the examiner, or may omit fragments of thoughts, or may omit words, whether they be key words (locating or identifying parts of a response without naming the response) or,

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[4] When the protocol in which the author found the greater number of these 20 kinds of limitations was selected as the epileptic, 20 of the 26 matched pairs, or 77%, were correctly identified.

Selection of the epileptic record based only on the starred items raised the percentage of correct selection to 81%, and when all 20 items were used, but the starred items were weighted most, the correct selection was raised to 85%.

less pathognomonically, ellipses.

*2. Poorly organized presentation: The epileptic seems more apt to backtrack, start and stop, trail off into incomplete vagueness, or lose track of his thoughts.

3. Redundancy: the epileptic seems more apt to repeat himself, usually when he tries to improve his communication of his ideas.

4. Egocentric orientation: The epileptic seems more apt to describe or account for his response in relation to himself.

5. Inaccurate use of words: This refers to incorrect rather than imprecise word selection.

6. Groping for words: The epileptic appeared less often able to marshal his words at will. This does not refer to hesitancy in the interests of perfecting a response.

7. Vagueness of word usage: The epileptic was less apt to use exact, pinpointing words, (e.g., he is more apt to say "animal" than specify the kind of animal). This is to be distinguished from the abstractions and generalizations of the intelligent schizoid who may say "winged creature" rather than "bat".

8. Loosening qualifiers: For example "some kind of.....", "sort of....."

9. Alternatives: For example, "either..... or.....", or a series of alternatives, one of which he hopes will hit the target and communicate the concept. This is to be distinguished from a rich flood of precisely-communicated alternative associations to the same area.

II. *Unsureness*

1. Unsure of the perceptual-associative process: This appears to be vagueness of intake, as contrasted with the above described vagueness of output. From the epileptic records, one is more often apt to get the impression that the person is perceiving and/or associating through a mass of static.[5] Allowing for personality differences between the matched pairs such as dependency, self-deprecation, chronic anxiety, the epileptic seems more apt to be unsure of the adequacy of his response in the eyes of the examiner, comparable to Piotrowski's "perplexity." However, more characteristic of these epileptics seems to be their own unsureness as to whether or not they have accurately or appropriately identified the stimulus. It seems as if not just their associations but even the stimulus itself is not clear to them. It is not so much that they know or feel their responses are inadequate and can't improve on them, as in Piotrowski's "impotence." It is as if they do *not* know, or at least are not sure of, the appropriateness of their perceptual-associative processes. This appears comparable to the experience of the Ss who do not recognize when they have correctly completed a Wechsles-Bellevue block design or picture arrangement or picture completion task. The epileptic more often than the nonepileptic may not mention a perfectly good response until the inquiry because of this unsureness of intake.

On the output side, he may go on to name parts of a response after having named the whole, or show in other ways that he is not sure he is couching his ideas in the right words to put them across to the examiner. However, unsureness of communication probably overlaps with vagueness of communication in that it may be expressed in terms of "some sort of.....", "may be a .....", "a ..... but I don't know what kind", etc.

2. Unsureness in handling the test and test situation: The epileptics seemed more apt to give the impression that they were not sure what the test was all about, not sure what was expected of them, more apt to feel the need of additional instructions. In general, the nonepileptic of the pair seemed more business-like in the way he handled the task and his relationship with the examiner.

III. *Perseveration*

On the whole, the epileptic seems to show

[5] This concept of a particular kind of "Unsureness" among the epileptics proved to be an a priori rationalization of the author. For all practical purposes, it was impossible to detect a qualitative difference between the unsureness shown by the epileptics and the unsureness shown by the nonepileptics. Nor could unsureness in experiencing be differentiated from unsureness in communicating the perceptual associative process, nor unsureness of the adequacy of his response in the subject's own eyes from unsureness of how adequate it would seem to the examiner. Unsureness proved primarily a matter of personality, and since most of these matched pairs were strikingly similar in personality, it is not surprising that "Unsureness" as a discriminating criterion for epilepsy proved to have relatively little validity and reliability. When it was used in a sleep deprivation study as one of the criteria for predicting which personality types would hallucinate after prolonged wakefulness, unsureness proved to be a much more useful criterion. (Loveland & Singer, 1959).

more evidence of perseveration or stereotypy in one or more of the following ways:

*1. *Mode of organization:* Once the blot has been organized in a certain way, the same or a very similar type of organization is forced on one or more successive blots. The S may flounder if he can't rigidly repeat a previous organization. For example, once he has used the symmetry of the cards to produce two of something ,he can't produce much of anything unless he can identify two of everything or, once he organizes the parts of a blot into a face, or a body, one or more succeeding blots are similarly treated even if it requires Procrustes' technique. This is comparable to what young school children tend to do when they solve a second arithmetic problem by the same method they used for the first, without regard to whether the two problems call for different methods. Perhaps the epileptic is less likely to outgrow this stage of development or outgrows it later. At any rate, the epileptics in this group seem to show it more than the nonepileptics. The goodness of form level as well as the content or theme of the first and the perseverated mode of organization may or may not be the same. Neither amount nor quality of organization (*z* score) significantly differentiated these two groups.

*2. *Coexistence:* the epileptics seem to have more difficulty in allowing the two ideas to co-exist. More often than the nonepileptics, they seem to find themselves interpreting a blot or part of a blot in one way only to find that part of that blot or area reminded them more of something else. More pathognomonically, when this did occur, the epileptics seemed more likely to experience this as a disturbing discrepancy, this impinging of one idea on or perseveration into another. They did not seem as easily able to reconcile the two ideas, to disregard the one, or to accept and present both as two discrete interpretations, (e.g., this looks like a ....," but this part looks more like a ...."). This is comparable to difficulty in reconciling differences to get at likenesses in the Wechsler-Bellevue Similarities subtest. This type of concrete pull is to be distinguished from such personality-induced qualifications as "a ...., but his..... are too big", or "would be a good..... if you took this part off" or "I can't see where this would fit in."

3. *Similarity:* The epileptics more often reported impressions that all the cards look alike or that one card is similar to a previous one.

4. *Content or theme repetition.*

5. *Stereotypy in words and phrases used.*[6]

IV. *Personality*

While no personality criteria seem to work as well as the others, the epileptics seemed to show more of the following:

1. Emotional immaturity.

2. Isolation. More of the epileptics seemed inexperienced in and less likely to form close interpersonal relationships, except on a dependent basis.

3. Gross reaction to color and/or color shock.

4. Less clarity or structuredness of personality. This impression may be simply due to their poorer communication or their emotional immaturity, rather than to a less matured stage of development in personality structure.

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[6] Reexamination of the evidence suggests that this would be a much more useful criterion had the "sign off" phrases such as "That's all I can do with it" been excluded from consideration in the instructions for blind selection.

Parental Attitudes as the Basis for Attributing Meaning to Rorschach Cards IV and VII[1]

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Whether or not Rorschach cards IV and VII pull responses that are directly or symbolically related to parental figures is a problem that has been considered both theoretically and empirically. A review of the literature reveals discrepancies among theorists when considering the specific nature of interpretations appropriate to responses elicited by these cards. For Schafer (1954) and Holt (1954) the assignment of specific interpretations to responses given to any of the ten Rorschach blots are neither logical nor consistent with psychoanalytic theory. Both authors emphasize the role of the individuality of experiences, adjustive mechanisms, idiosyncratic perceptions and parent-child relationships in determining the quantity and quality of responses to each of the blots. Schafer and Piotrowski (1957) point out, however, that if a disturbed reaction to card IV or VII is apparent, and if human responses with negative affect are elicited, one might speculate about parent-child conflicts.

Phillips and Smith (1953), Brown (1953) and Allen (1954), on the other hand, assume a direct relationship between responses to cards IV and VII and attitudes towards parental figures. They imply that there is justification for making specific interpretations and predictions about parent-child conflicts regardless of the content of the responses themselves.

The "father-mother" hypothesis has been investigated from the standpoint of "stimulus value" by Meer and Singer (1950), Rosen (1951), Charen (1957), Taniguchi, DeVos and Murakami (1958), Rabin (1959), Engel (1959), Kamano (1960) and Zax and Loiselle (1960). With the exception of Charen and Engel the results of these studies are interpreted to mean that the stimulus properties of cards IV and VII do evoke parental associations. From this, the authors draw the further inference that the Ss relationships to their parents can be deduced from responses to these cards. However, as Klopfer (1954) indicates, the cards have ostensible form and textural qualities that are often associated with masculinity (card IV) and femininity (card VII). These cards might therefore be selected as symbolic of father and mother solely on the basis of stimulus pull rather than being related to personality variables or degree of parent-child conflicts.

PROBLEM

In the majority of previous studies attempting to explore the father-mother hypothesis, emphasis was placed on the stimulus qualities of the blots. Even though this is an important area of inquiry, an investigation of intra- and inter-personal variables of the Ss taking the test seems more relevant since it is essentially on the basis of these variables that theorists derive assumptions and hypotheses concerning Rorschach responses and interpretations. The specific problem is therefore, to investigate the influence of intra- and inter-personal variables concerned with parental relationships upon the perception of cards IV and VII as the father and mother cards respectively.

[1] Based on a dissertation submitted in partial fulfillment of the requirements for the Ph.D. degree at the University of Portland, Portland, Ore. This investigation was conducted under the leadership of Walter G. Klopfer, Ph.D., with the assistance of Gordon K. Higginson, Ph.D., James C. McGreevey, Ph.D., and Sheridan P. McCabe, Ph.D.

Method

Measures Used: The measures of intra- and inter-personal behavior employed were selected from Leary's (1956-1957) system of interpersonal behavior, and the Mf scale of the MMPI. In Leary's system four of his five operationally defined Levels of personality can be measured directly. The following two Levels were used in the present study: 1) Level II, the Level of Conscious Description, or the way an individual describes himself and others; and 2) Level III, the Level of Private Symbolization, which is the indirect expression of an individual's imagined self and relationships in his "preconscious" or symbolic world. Difference scores computed between the Self and Parents at any given Level (unilevel) are operationally defined measures of "identification." Difference scores computed between Level II and Level III (multilevel) are operationally defined measures of "defensiveness."

Procedure: The 334 Ss (185 males and 149 females) were all undergraduates enrolled in general psychology classes. Each S, while looking at chromatic location charts[2], were asked to rank the ten Rorschach blots (from 1-10) indicating which of the blots appeared to be most like, or associated with the concept 'father', by giving this blot a rank of 1. To that blot which least represented the concept 'father', the rank of 10 was given. The same procedure was used for the 'mother' ranks. Each S was also asked to check three Interpersonal Adjective Check Lists (Level II), one for Self (Sc), one for Father (F) and one for Mother (M). The Ss wrote stories to 12 pictures from the Interpersonal Fantasy Test[3] (Level III) which yielded scores related to Father (F), Self in relation to father (Sf)[4], Mother (M), and Self in relation to mother (Sm). The 60 items of the Mf scale was the final measure administered to each S.

Handling of the data: In scoring and processing the test data each variable measured at Level II and III was assigned a score on a Dominant-Submission (Dom) scale and a score on a Love-Hate (Lov) scale. For each S this procedure resulted in six Dom and Lov scores for Level II and 8 Dom and Lov scores for Level III. Each S also had a masculinity-femininity interest score (Mf), and a rank of from 1-10 for father (card IV) and a rank for mother (card VII).

In each of the statistical computations males and females were treated separately. Significance of the differences in the ranking of card IV and card VII by Ss scoring high (upper 27%) and low (lower 27%) on the Dom and on the Lov dimensions for each Level II and Level III variable were computed.[5] Each of the distributions of Dom and Lov scores for both Levels was converted to standardized T scores (Mean=50; SD=10) to permit the calculation of the difference or discrepancy scores. Significance of the differences in the rankings of cards IV and VII by Ss with large (upper 27%) vs. small (lower 27%) unilevel and multilevel discrepancy scores on the Dom and the Lov dimensions were computed. Significance of the differences in the ranking of cards IV and

[2] The chromatic location charts were employed as the result of a pilot study which compared the ranking from father (card IV) and for mother (card VII) from the location charts with that from the actual Rorschach plates. The rank-order correlation coefficients for both cards was .99.

[3] The Interpersonal Fantasy Test was developed by the Kaiser Foundation to fit the interpersonal system and is of the TAT variety.

[4] Sf and Sm are assumed to represent the Self at Level III. Leary (1957) defines this variable as the "Other" and conceives of "Other" as being on a "deeper" level than the "Hero" which in the present instance is F & M.

[5] Each of the statistical hypotheses was tested with the rank test developed by White as reported in Edwards (1954). A correction for tied ranks and for continuity was employed in each test.

VII by Ss scoring high (upper 27%) and low (lower 27%) on the Mf scale were also computed.

General Hypothesis: Personality variables, as measured by Leary's system and the Mf scale, will be related to Ss ability to rank card IV as representing the father, and card VII as representing the mother.

RESULTS

Chi-square tests were run between the first two (1 & 2) and the last two (9 & 10) ranks for each of the four distributions of ranks. All of the X^2 values were significant beyond the .01 level. Thus both male and female Ss rank cards IV and VII as being associated with, or more like, the father and mother respectively.

The following summary tables list the significant differences found between the ranks given to card IV and to card VII by those Ss who score high vs. those Ss who score low on the Dom and on the Lov dimensions for Se, F and M at Level II, and for F, Sf, M, and Sm at Level III. The tables also illustrate the significant differences in the ranking of the cards between Ss who fall in the upper 27% or have the largest discrepancy scores vs. the lower 27% or those who have the smallest discrepancy scores for both unilevel and multilevel differences.

Table I shows that male Ss who describe F, M and Sf as hateful (low love) rank card IV more like father and rank card VII more like mother. Likeswise if Se and Sf are perceived as being passive (low Dom) card VII is ranked more like mother. It is likewise interesting to note that only in the case of large discrepancies are the cards ranked more like the parental figures.

For female Ss (Table II) when Sf and F are perceived as dominant (high Dom) card IV is ranked significantly more like father. When there are small discrepancy scores between Self and F, and large discrepancies between Self and M, both cards are ranked more like father and mother. Also if there is little perceived difference in parents (small discrepancies) the cards are again ranked significantly more like father and mother.

With respect to masculinity-femininity of interests (Mf scale) male Ss who have low masculine or more femi-

TABLE I Significance of the Differences in the Ranking of Cards IV and VII by *Males* scoring High and Low on Levels II and III, and with Preference to Large vs. Small Discrepancies between Unilevel and Multilevel Measures on the Dom and Lov Dimensions.

CARD IV

Dominant			*Love*		
Levels			*Levels*		
II	III	P	II	III	P
F		.65	F		.05+
M		.50	M		.05+
	Sf	.38		Sf	.05+
Se-M		.05*	Se-M		.01*
	Sm-M	.05*		Sm-M	.04*
Se — M		.33	Se — M		.05*

CARD VII

F		.12	F		.05+
M		.50	M		.01+
Se		.05+	Se		.84
Se-M		.01*	Se-M		.05*
	Sf-F	.05*		Sf-F	.44
	Sm-M	.05*		Sm-M	.59

+ Ss who perceive Se, F, M or Sf as low on Dom or Lov rank either card IV or VII significantly more like father and mother.

* Ss with large discrepancy scores rank card IV or VII significantly more like father or mother.

nine interests tend to rank card IV more like father ($p=.08$). On card VII males who have low masculine interest scores rank card VII significantly more like mother than do those who have high masculine interest scores. For females those Ss who have low feminine, or more masculine interest scores rank both cards IV and VII significantly more like father and mother respectively than do females with high feminine interests.

Discussion

Even though cards IV and VII are given significantly more ranks as being associated with father and mother this alone does not permit inferences concerning the relationship of personality variables to the ranking of these cards. However, meaningful intra- and inter-personal implications can be derived from the overall results if the Dom and Lov dimensions are thought of in terms of Symonds (1939) classification of parental attitudes. Symonds proposed that parental attitudes could be laid out on two axes, one extending from acceptance to rejection (Lov), and the other from dominance to submission (Dom). In the same manner if masculinity-femininity of interests and the operationally defined unilevel measures of "identification" are assumed to represent degree of affiliation with the parent of the same sex, the overall findings contribute to the meaningfulness of interpreting the projection of conflict-laden responses to cards IV and VII.

Thus Ss who perceived the parents as hateful and rejecting, and who also feel disaffiliated from the parents appear to project these conflicts onto the cards. The assumption that conflicts are projected onto the blots is in conformity with that aspect of projective theory (Sears, 1936) which states that individuals are more likely to project what is unacceptable to the self and society.

Whether or not the ranking of these Rorschach blots for father and mother can be thought of as projection is answered theoretically by Frank in the introduction to *Projective psychology* (Abt and Bellak, 1952) when he states:

> It is realized that a situation or a questionnaire, however standardized and ob-

Table II Significance of the Differences in the Ranking of Cards IV and VII by *Females* Scoring High and Low on Levels II and III, and with Reference to Large vs. Small Discrepancies between Unilevel and Multilevel Measures on the Dom and Lov Dimensions.

Card IV

Dominant			*Love*		
Levels			*Levels*		
II	III	P	II	III	P
	F	.05††		F	.48
	Sf	.05††		Sf	.79
F-M		.98	F-M		.04**
Se-F		.51	Se-F		.05**
M – M		.05**	M – M		.66
M – F		.05**	M – F		.52

Card VII

F		.92	F		.01†
Se-M		.02*	Se-M		.05*
F-M		.05*	F-M		.05*
	F-M	.02*		F-M	.08

† Ss who perceive F as low on Lov rank card VII more like mother.

†† Ss who perceive F and Sf as high on Dom rank card IV more like father.

* Ss with large discrepancy scores rank card VII more like mother.

** Ss with small discrepancy scores rank cards IV and VII significantly more like father and mother respectively.

jectively presented, will be perceived and responded to by each subject in his nearly unique way, although there will be in any large series of subjects certain regularities.

It would seem therefore that even though the Ss are not asked to provide verbal responses to the cards they are nonetheless ranking them for some 'idiomatic' reason.

Frank's conception of projection appears to be consistent with the theoretical observations of Schafer (1954) and Holt (1954). The latter emphasize the fact that individuals differ in experiences and personality constituents. Consequently responses that are elicited by the blot materials, even though the blots remain constant for each S, are motivated by processes unique to the perceiver. There is the further inference, on the part of Schafer, that responses to the blots are indicative of a disturbance, only if conflict is present in the parent-child relationship. This contention appears to be supported by the present results.

From the above it would appear that the father-mother hypothesis is tenable only when the S has experienced early parental rejection which has resulted in an absence of appropriate sexual identification and feelings of being disaffiliated from the parents. However, interpretations of this nature, for a single individual, should be made with caution since the present results are a reflection of group trends and not necessarily applicable to individual differences. Caution must also be exercised in extrapolating beyond a non-clinical population such as is included in this study.

SUMMARY

Three hundred and thirty four college students (185 males and 149 females) were used to investigate the relationship between personality variables and Ss ability to rank Rorschach cards IV and VII as father and mother cards. The personality measures came from Leary's (1956; 1957) system of interpersonal behavior and the Mf scale of the MMPI.

The overall results indicate that if there are measurable parent-child conflicts these disturbances are likely to be projected onto cards IV and VII. Even though such inferences have importance, extreme caution should be exercised in making interpretations related to parents, especially in individual cases. In conclusion it appears that the unqualified designation of Rorschach cards IV and VII as the "father" and "mother" cards respectively appears to be unjustified.

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'Hypothesis' Theory and Perceptual Responses to Inkblots[1]

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PROBLEM

Bruner (1951) and Postman's (1951) *Hypothesis Theory* maintain that past experience and motivational support are among the factors that strengthen those perceptual expectancies which come into play when the stimulus becomes less structured. The creation of conditions of reduced stimulation for the elicitation of a perceptual discrimination has been attained in several ways: by subliminal exposure of the stimulus; by destroying the form of the percept in making it similar to out-of-focus picture slides; by varying the direction or intensity of illumination; and in some cases by showing ambiguous drawings. Still another possibility is the ordinary ink blot stimuli used in projective techniques. The resulting uncertainty affords more opportunity for the operation of "hypotheses" to come into play. This is precisely the condition upon which the rationale of Rorschach's test is based, whereby the process of visual recognition involves categorization of perceived cues to different classes. Disagreement between the subject's verbal report and the stimulus configuration results in a *nonveridical* response. Agreement between these two variables constitutes a *veridical* response.

Bruner (1948) maintains that a comprehensive perceptual theory should contribute to the understanding of the processes involved in projective techniques. The present study is designed to test the prediction that, with ink blot stimuli, perceptual behavior will be determined by the dominant "hypotheses" of the subject during the moment of perceiving. Furthermore, it will investigate possible implications that responses elicited by projective techniques can be interpreted in terms of the larger body of experimental data derived from a more general theory of cognition. On the basis of this reasoning, the general problem was formulated. It assumes that there is no significant difference between veridical and nonveridical responses to either ambiguous or structured ink blot stimuli. In particular, two experimentally testable corollary problems were derived.

Problem I: There is no significant difference between veridical perception of ambiguous and structured ink blot stimuli, when the former have been preceded by the latter.

Problem II: There is no significant difference between nonveridical perception of ambiguous and structured ink blot stimuli, when the former have been preceded by an induced failure-expectancy.

METHOD

Replication of Rorschach's plates was achieved in order to provide a basis for, and to facilitate, the scoring of responses. Two subsequent series were made also, each deviating structurally from the standard set. One series conveyed the popular areas with better form and more outstanding content features. In the other series, the blot areas were blurred and the form qualities made more ambiguous than the standard series. All the cards were reproduced in 2 x 2 kodachrome color slides and, thus, three degrees of stimulus ambiguity were available. The slides were shown on a white

[1] Based upon a portion of a doctoral dissertation submitted to the Department of Psychology and Education of the University of Ottawa. Appreciation is expressed to the members of the dissertation committee, Drs. Raymond Shevenell, Maurice Chagnon, Lawrence Dayhaw and Gilles Chagnon.

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screen with a *Bausch and Lamb Balomatic 300* automatic slide projector. Exposure time was .10 seconds for each slide. The standard exposure duration for each slide was necessary in order to control any possible changes in the quality of perceptual responses due to a function of exposure time alone. The standard duration of exposure was achieved by an attached shutter. The subjects were requested to write down their responses on an answer sheet. The projector was placed six feet away from the screen and the subjects were seated three feet behind it. The experimenter operated the projector and gave the instructions verbally. Illumination of the experimental room was found to average .6 foot candles. The procedure for each experimental group was the same except for the instructions and the order of presentation of slides. The subjects were led into the testing room in groups of six or less each time, and were not aware of the purpose of the experiment. Subjects wearing glasses were allowed to participate, although those with very poor vision were eliminated. All subjects were requested to take into account the whole picture in the slide, the reason being to enhance the validity of scoring as far as the area of ink blot was concerned. Following the instructions, the lights were put out and the experiment began. Prior to the projection of each slide, the reminder "Ready?" was given to make certain that every subject was watching the center of the screen during the exposure, and was attentively anticipating the showing of the slide. To ensure that all subjects had sufficient time to record their responses, the time interval between exposure of the slides was not held constant. Seventy-five subjects participated in the overall plan. The first experimental group and the control group contained thirty subjects of mixed sexes. The last contained only fifteen subjects, all male due to the nature of the experimental conditions. All subjects were psychologically unsophisticated undergraduate students and were randomly assigned to each group.

In the first experimental group, the order of presentation of the slides was from the structured to the ambiguous, while the slide identical to Rorschach's plate was in between them. The instructions were as follows:

> This is an experiment in perception. Different picture slides will be shown on the screen for a very short time and you are to write down what you think is the picture. There are no right or wrong answers. Answer each slide even if you have to use your imagination or guess. Write down your first impression as quickly as possible in each of the numbered spaces, beginning from No. 1. Different people see different things in these pictures, and I want to find out what each of you see. The slides will be shown as soon as the lights go out. When I say, "Ready," please keep your eyes in the middle of the screen and take into account the whole picture in the slide when you decide on your answer. You will have enough time to write down the answer. Please do not talk to each other after the experiment has begun.

In the control group the order of slides was from the ambiguous to the structured and the same instructions were given. Finally, instructions to induce the subjects to expect failure were attempted. To accomplish this, failure instructions were devised with the intention to make the subject ego-involved, to heighten his level of frustration and anxiety, and to generate feelings of inadequacy and intellectual inefficiency. The only instructions given to this group were as follows:

> This is an experiment in perception and it measures your personality and intelligence. I am going to show you slides one at a time and you are to tell me what they are. The answers are either right or wrong; as soon as you give me your answer I will tell you whether you were right or wrong.

Following these instructions, the ambiguous series were shown and the subject was told that he was constantly in error. Derisive comments were also made to deflate the subject's ego and to create an anxiety-provoking

situation. Some of the comments were as follows: "You have done much worse than the others who took this test before." "You're below normal." "Why is it that you cannot give the right answers?" "Is it because you are having emotional or personality problems?" "Have you had bad dreams lately?" "Are you taking this test seriously or are you trying to waste my time?"

The experimenter recorded the responses of the ambiguous series while making these remarks to the subject. Then, the slides identical to Rorschach's plates were shown and the subject was told that the answers will be either right or wrong, but that he will not be informed as to how well he did in this series. After all the subjects were through with this experimental problem, they were all seen again and the purpose of the procedure was explained to them as they had been promised prior to taking the test. This was done as soon as the experiment was over in order to alleviate any anxiety that might have precipitated after such an ordeal. The answer sheets were scored by the experimenter. The Beck (1950) system was used because of its familiarity and relatively restricted subjectivity. Each response was scored by taking into account the whole area of the blot, since the subjects were instructed to perceive it in that manner. Besides the instructions, the showing speed seems to have prevented the subjects from perceiving details, but facilitated the perception of the whole blot. However, certain popular areas of perception did not occupy the whole area of the blot. For example, when subjects responded to Card III with "two people," or to Card VIII with "two animals climbing," they were given a plus rating, although these were certainly not considered as whole responses. Such responses were quite obvious as far as categorization was concerned. Cards I, IV, V and VIII did not contain any discernible human form, but were retained because it was felt that strong "hypotheses" would be evoked due to the nature of the instructions, even though the stimulus information was quite inadequate. It is possible to elicit human form responses or responses that follow and resemble such forms, although not necessarily popular. Responses with good form were given a plus sign; F+ denotes there is sufficient agreement between the form of the blot and the percept. Responses characteristic of bad form were given a minus sign; F− implies the percept does not fit the ink blot. The plus responses are precisely the veridical responses cited earlier and the minus responses represent the nonveridical type. A separate category included those rseponses which, according to Beck's criteria, did not fit in either of the above two classes. In this neutral or independent category were assigned those responses normally given a plain F sign according to Beck. Finally, a fourth category consisted of the number of "no" responses to the ink blots. The indeterminate and rejection responses were used in order to make the first two sign categories more meaningful in the whole study. Whenever two responses were given to the same blot, the first was considered. Responses that scored both F+ and F− by Beck, such as animals on Card X, were classified in the indeterminate category. Also, responses such as "dust," "blobs," "blots," "colors," and "spots," were put in the nonveridical class because of their lack of definiteness and specific form.

The reliability of the scoring was tested by randomly selecting ten answer sheets which were scored independently by a judge who was not told under what conditions the responses were obtained. Verdical responses were considered first. The data in the two sets contained the veridical responses given by the two independent scorers for each subject ($N=10$). The first set contained those scored by the experimenter, and the second those scored by the judge.

A correlation method that is used for ungrouped data when deviations are the original scores, yielded an r of .88. For eight degrees of freedom, an r must be about .765 to be significant at the .01 level. The same procedure was used for the other categories. An r of .81 was obtained for the nonveridical responses, .93 for the indeterminate responses, and .90 for the rejection category. All the correlations are significant at the .01 confidence level.

Results

The frequency of the assigned response categories obtained by each subject for all the series was compiled separately for each experimental group. All the data are presented in Table I. The four response categories are the classes in which the responses were ordered by relatively objective ratings. "Series" denotes the three groups of cards which vary in structuralness; thus, the responses of each series are rated and categorized in either one of four classes.

The next step was to determine whether the frequency differences in every group between the series in each of the four class responses are statistically different. The *t* test was used in order to determine whether the mean scores in each response category vary significantly. The response categories in each group consist of correlated data, since they were given by the same subjects. It should be noted that each subject had given many responses characteristic of a specific category.

The first attempt was to establish the validity of the three series of ink blots as they vary in structuralness. An inspection of the figures in the control group shows a concomitant increase of veridical responses with the structuralness of the ink blots. On the other hand, the nonveridical responses decrease. Likewise, those responses that could not be categorized in either way also decreased as the structurality of the ink blots increased. All the differences of response categories between each series in the control group were significant beyond the .01 level of confidence. Thus, the assumption underlying the rationale of the control group, namely, that the structuralness of the ink blots is a source of variance is substantially supported from these results. The summary of results is shown in Table II.

The results reveal that in the first

Table I Frequencies of Response Categories in Each Series for Every Group

	Veridical			Nonveridical			Indeterminate			Rejection		
	Amb.[a]	S.[b]	St.[c]	Amb.[a]	S.[b]	Str.[c]	Amb.[a]	S.[b]	Str.[c]	Amb.[a]	S.[b]	St.[c]
Control	82	124	220	54	36	15	160	137	65	4	3	
Reversed	194	155	121	31	32	32	68	107	139	4	6	8
Failure	48	57		23	29		55	39		24	25	

[a] Ambiguous
[b] Same with Rorschach's Plates
[c] Structured

Table II Summary of Tests of Significance of Response Categories Between Series in Every Group

	Groups						
	Control			Reversed			Failure
Response Category	A[a]-I[b]	I-S[c]	A-S	A-I	I-S	A-S	A-I
Veridical	.01	.01	.01	.01	.01	.01	NS
Nonveridical	.01	.01	.01	NS	NS	NS	NS
Indeterminate	.01	.01	.01	.01	.01	.01	NS
Rejection							NS

[a] Ambiguous Series
[b] Identical to Rorschach's Series
[c] Structured Series

problem the *t* in the veridical response category was significant at beyond the .01 level, and the facts do not uphold the assumption. The rejections in this and the control group were very few and hence were not taken into account. In the second problem, there should be no fluctuation in the mean frequencies of the nonveridical responses, and the results substantially support this assumption.

DISCUSSION

The data in the nonveridical category suggest that strong nonveridical "hypotheses" do not change even if the stimulus information becomes more adequate to these "hypotheses." By extrapolation from these data, it might be that in ordinary Rorschach responses, which to a great extent reveal the subject's strongest and most significant "hypotheses," those that are invalid or incongruous will require a greater amount of adequate information to be rejected. These results support further that degrees of ink blot stimuli elicit the same relationship as do the other ambiguous stimuli. Furthermore, it makes more meaningful the process involved in the perception of ink blots for the study of personality. On the basis of these findings, further research might reveal a relationship between certain personality attributes and specific response categories. For example, rigid individuals might maintain nonveridical "hypotheses" from ambiguous to redundant situations more readily than less rigid persons. In the first problem, veridical responses become easily reconfirmed as the structuralness increases. Said in another way, veridical responses are stimulus bound. These results may imply that veridical responses—usually characteristic of the normally functioning personality — are more flexible to changing stimuli; with these there seems to be greater reality testing than with nonveridical responses which lack such flexibility and are not associated with normal tendencies. Although there is empirical evidence in favor of the above interpretation, it would be interesting to investigate further those subjects utilizing such expectancies with varying degrees of stimulus cues. Veridical responses in the second problem have not borne out the same relationship. It seems that there is less flexibility with respect to ego-involving situations than with expectancies based on past experience. There was a noticeable increase in the rejection responses in the problem given failure "hypotheses." It is conceivable that the phenomenon of response suppression occurred—a process whereby a stimulus is seen but not reported when a situation is ego-threatening or embarrassing. Such an outcome indicates that failure and ego-threatening "hypotheses" continue to operate even when cues in the environment increase to afford a greater chance for perceptual confirmation.

The data of the study have shown how nonveridical expectancies persist and continue to dominate a changing perceptual field, which makes more observable the operation of invalid attitudes—a very frequent phenomenon in the area of social perception. Furthermore, perceptual responses to ink blots of the nonveridical type can be adequately understood and explained from the *Hypothesis Theory* point of view, and this theory of perception might furnish the basis for a theory of personality drawn from the perception of ink blot stimuli.

SUMMARY

The assumption was made that responses to varying degrees of structure in ink blots are related to expectancies that are either previously confirmed or motivationally significant. Three series of ink blot slides, each varying in structurality, were projected individually on a screen to two groups of subjects. The middle series contained Rorschach's original ink blots, while one series of the other two was more structured and the other less structured. Responses were scored with

Beck's criteria; a plus sign denoted a veridical and a minus a nonveridical response.

In the first group, the series were shown going from the structured to the ambiguous, assuming a carry-over of veridical responses from the former to the latter. The assumption was not confirmed by experimental facts. The ambiguous series in the second group were associated with verbally given failure expectancies, assuming a carry-over of nonveridical responses to the middle series. The assumption was confirmed by experimental evidence. The findings showed additionally that nonveridical responses in both groups did not change concomitantly with the structurality in the ink blots. This lends support to that part of the *Hypothesis Theory* indicating that strong negative expectancies continue to operate regardless of the changing meaningfulness of the stimulus. It was concluded that the results from the perception of ink blot stimuli partially confirm the assumptions of the theory. Implications of the findings were discussed with the possibility of interpreting responses to ink blots under a general theory of cognition, along with some suggestions for further research.

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The Psychodiagnostician As Expert Witness

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The role of the psychologist has become a very complex and varied one since the early days of educational theorizing and the construction of intelligence tests. It is not necessary to enumerate the many facets of professional activity which have come to occupy the attentions of psychologists among the subdivisions of our field and in the forays we have made into the provinces of other disciplines where we have had something to offer. Among the more recent extensions of our work, an interesting one in which increasing numbers of us can be expected to participate is the courtroom.

Undeutsch (1956) and others have described the growing role of the psychologist as expert witness in foreign countries. Frank (1956), May (1956), McCary (1956), Schofield (1956), and others have commented on the psychologist as legal witness in courts in this country. We read periodic warnings in our bulletins and newsletters about the problems of testifying which are encountered. McCary (1960) recently published portions of courtroom testimony which exemplify one kind of cross-examination the psychologist may receive by a hostile and clever attorney bent on discrediting him or his testimony. Schwarz (1960), in taking issue with McCary's presentation as not adequately representative, puts forth some of his own ideas and experiences as guidelines for others who will be called upon to render professional opinions.

The kinds of cases wherein psychologists are asked to participate are becoming less and less restricted. At the present time, Veterans Administrative Review Boards, Inquiry Boards of the Armed Services, industrial arbitration courts, insurance litigation committees; a wide range of civil suits involving child custody, parental fitness for adoption, competency hearings, certain kinds of divorce action, licensure for specific types of profession where there has been some question raised about character; criminal proceedings where not only sanity is involved, but questions concerning disposition of the case because some mitigating or aggravating factors might be intermingled; doubts about guilt or innocence raised by the incongruity of the offense and previous known behavior of the defendant, which might be resolved by psychodiagnostic assessment; all these, and many other kinds of issues, often bring the psychologist into the case, especially where objective data are desired over and above the often-conflicting opinions of psychiatrists.

Most of the time, the psychologist, as is the case with other expert witnesses, is employed by one or the other side of a legal wrangle. However, there is a slowly growing trend toward his being employed as *amicus curiae*, or "friend of the court", such that his opinion is sought by the judge in a consultative capacity, rather than as protagonist for either side. While many psychologists might prefer this role as "friend" to the one where they might be subjected to attack, the realities of the situation suggest that the latter alternative will probably continue to be the major kind of assignment they will get, at least in the forseeable future. The need to defend oneself personally and professionally, hence, continues, and dictates that the psychologist be adequately prepared, much as any other witness must.

Schwarz (1960) concludes that "satisfactory preparation for the court requires: command of the material about which one is testifying, a thorough knowledge of behavioral norms and psychopathology, and an adequate fund of general information." McCary's (1960) article suggests that,

in addition, it would be wise to have strong background in testing, specific knowledge of the tests in question, a high level of self-confidence to withstand pressures bordering on abuse or insult, and an available sense of humor. Perhaps it might be added, further, that both a professional demeanor that is not readily shakable, and the freedom to admit ignorance on some subjects, where appropriate, may be counted upon materially to enhance one's position. Perhaps, as specialists in human behavior and persuasion techniques, we should remember that not only the content of our presentation but the mode of delivery can count very heavily, where effect is concerned.

The writer has had occasion during the past six years to administer psychodiagnostic test batteries to several hundred persons who were involved in one or another kind of problem mentioned above, and to write detailed reports describing personality, render diagnostic or other indicated professional opinion based on these tests, and make recommendations as to disposition. In about ten percent of the cases, it has been required of him that he testify under oath, re-iterating or amplifying his findings, and allowing for cross-examination. Although no detailed account has been recorded for reporting herein, it is felt that some of the kinds of issues arising in such situations might serve to acquaint (and therefore prepare) other testifying psychologists.

One case involved a Naval officer accused of sabotaging government property in efforts to delay his departure from this country because of alleged difficulties with his wife which he is accused of having wanted to resolve before he left. The referring psychiatrist asked the question of the psychologist: "Is the character structure, as reflected in the test data, of the kind which is capable of this kind of action?" Impulsivity, as inferred from color responses on the Rorschach; a very guarded TAT protocol denying violent action or wishes in any of the themes, including those where they might most be expected; a rather defensive Sentence Completion inventory; and an MMPI profile showing elevated scores on *K, Pd, Sc,* and *Ma* scales—all these inclined the examiner to an affirmative answer to the psychiatrist's question. However, the report stressed the need for caution in interpreting these results, by (a) indicating that many persons with a character structure capable of such action as the naval officer was alleged to have committed never act on such potentialities, and by (b) emphasizing that the findings showed compatibility of personality with action without any real proof of overt action. The defendant's attorney attacked the premises of Rorschach rationale, called the TAT interpretation "capricious" because it was "based on a damned-if-he-does and damned-if-he-doesn't inference-structure", defended the sentence completions by pointing out that a person who is on trial is frightened and therefore apt to be guarded in his responses even if innocent, and attempted to disparage the MMPI by trying to maneuver the psychologist into saying that the scales were standardized on groups of "sick people" whose behavior is notoriously unstable and therefore unusable as norms by which to measure the personality of normal individuals. Although sodium-pentothal interview led to the conclusion of guilt by an examining psychiatrist who testified later, the defense based its case involving the psychological tests on the assertion that "it is a known fact that the Rorschach has never been validated" and challenged the examiner to prove otherwise.

Another case, involving an industrial accident, as a result of which the company wished to discharge the worker as no longer capable of performing his responsible tasks because of serious brain injury which allegedly caused him to be forgetful and inattentive concerning his duties and

to show poor judgment in making decisions, hinged on psychological test findings. The defense attorney here asked for specific items on the Wechsler which the patient had failed, in order to demonstrate to the court that the examiner's inferences were unwarrantedly extended. When it was pointed out that the patient had been a scout in the marines and a boy scout for more than four years, but had been unable to answer the question: "If you were lost in a forest in the daytime, how would you go about finding your way out?", his attorney replied that he himself wouldn't have known the answer. He asserted that he considered himself bright, of good judgment, and a commendable ex-boy scout; and he demanded to know whether this meant that he, or anyone else who couldn't answer this question, would be said to have brain damage and therefore be unfit to handle a job requiring judgment. Of course, the examiner can point out that the attorney would not have been either a good boy scout or a good attorney if his memory served him that poorly, but, perhaps more importantly, it is necessary to emphasize that the diagnostic impression is based not on one single response of the patient, but rather on a series of failures and successes characteristic of particular nosological categories. And to the question implying professional arrogance "By what right do psychologists, most of whom are not physicians and have no medical training, decide that one answer is correct and another incorrect—that replying the way the psychologist demands that you do is the price you pay for a judgment of normality?", it was found that attention focussed on the test instruments themselves rather than on the persons in the profession was more effective: "Persons who characteristically respond to the test items one way have different personality constellations or symptoms or behavior patterns than persons who characteristically respond another way, and psychologists have simply learned to recognize which test response pattern can be matched with which personality type."

A married dermatologist, who admitted on a routine questionnaire sent by his National Guard battalion that he had been arrested ten years previously on a homosexual offense with a vice squad officer, decided to fight ouster from the guard when likelihood of discharge resulted from his questionnaire answers. He insisted that he had pleaded guilty to the charge at the time in order to avoid the possible danger of harmful publicity to be expected in a jury trial, but that he was innocent. Psychiatric interview under drugs substantiated his allegation of innocence, but the government wanted psychodiagnostic proof that "no homosexual tendencies are present." A "normal" set of data resulted from the test battery, except for two Rorschach percepts: "Two women dancers" (on Card III), and (on VII) "two little boys playing Indians . . . no, they're little girls . . . they could be either . . . no, they're little girls talking." In testimony, when the examiner was asked if there were even the remotest hints of homosexuality in the tests, he replied in the negative, in the conviction that degrees of sexual confusion exist at some levels in everyone without implying either homosexual conflict or overt homosexuality. He felt that to open this issue to question would, quite apart from its very obvious possible peril to the stability of his position, be to raise speculative academic doubts which the experienced clinician has already settled within himself and among his peers. While it may be argued that this particular example does leave *some* room for ambiguity, the moral of this illustration is that it is better not obsessively to over-include all facts in a presentation out of the fear of exhibiting a biased picture; professional competence demands good judgment in omitting irrelevant inconsistencies or inconsistencies which the clinician has already

resolved honestly to his own satisfaction, rather than throwing himself and the profession at the tender mercies of a clever attorney able to make both the facts and the witness squirm unnecessarily.

An executive who had been relieved of a very responsible position was suing the company for slander because it had been stated that he had been fired for psychiatric reasons. The sum of money involved was considerable, and a diagnosis of the plaintiff became the crucial question of the suit. The company's psychiatrist had made a diagnosis of pseudo-neurotic schizophrenia, but he wanted psychodiagnostic test confirmation. The plaintiff came for testing reluctantly, gave a very defensive battery, and proved largely uncooperative, especially on the Human Figure Drawings, the TAT stories, and the Rorschach; he finally drew stick figures but put a hat on the figures that made the heads "transparent", gave circumstantial accounts of the happenings in the TAT pictures, and only one response per card on the Rorschach except on IX which he rejected completely The examiner's diagnosis of incipient schizophrenic reaction, paranoid type, was based on elevated *Pa* and *Sc* scores on the MMPI, sentence completion responses that included fear of gossipers and repeated mention of evil, TAT themes suggesting emotional insulation, and outright distortions of the blot material on the Rorschach in three of the cards. The plaintiff's attorney made much out of both the discrepancy between the psychiatrist's and the psychologist's diagnostic terminology, and the fact that "a man's good reputation is being besmirched and his livelihood threatened by arbitrary inferences from a frightened person's reactions to strange test questions." Although it was not difficult to reconcile the terminology differences, the attorney in this case resorted to a number of strategems frequently designed to trip up an expert witness. For example, he used the technique of seductively requesting the psychologist to "explain in simple terms, so that the jury can readily understand, what is meant by schizophrenia." Since, in most cases, the simple compliance with such a request leaves one open to a devastating blast of: "Aren't you trying, Doctor, to oversimplify a concept about which most of your colleagues are in the strongest disagreement?", the reply was prefaced with the dangers of oversimplification and the difficulty of clarifying briefly a very complex subject requiring detailed explanation and some background on the matter. The attorney also professed great ignorance about tests and requested some elemental instruction for "myself and the jury who are laymen and not acquainted with the tools of your trade which are generally so hard for the untrained person to understand." As his subsequent line of argument showed, this was intended to antagonize the jury toward the psychologist by making them seem too stupid to understand something which the witness is then able to explain quite easily. However, the attorney would then seize upon something said by the witness and show considerable familiarity with it, as if to demonstrate to the jury that he is a dependable watchdog after all who will not allow the witness to hoodwink him and them into an acceptance of occult material which their own good judgment would reject if only the testimony were reduced to "just plain English." Finally, his request that the psychologist furnish examples of Rorschach responses substantiating a diagnosis of schizophrenia constituted another possible pitfall. Attention was drawn by the examiner to the patient's reaction to Card IV: "This (laughs) is kind of scarey. It's a monster man coming at you with big feet . . . no, he's walking away. . . funny, the way his body looks transparent you can't tell if he's coming or going. Anyhow, if they're not his eyes as he's glaring at you, they're the visual part of his brain if he's facing away. No,

he's not trying to step on you; he's trying to go away, because you can tell by the spikes of this shadow between his legs that he's running fast so it (sic!) won't catch him." The examiner explained the coming-going conflict, pointed to the interpretative significance of the content itself, and to the queer logic in explaining the shadow which the spikes had been appended to in "proving" that they represented speed. The attorney, of course, tried to make light of these explanations through ridicule, both in the example already cited and in the two other responses submitted. In each case, it was necessary to explain to the jury that the nature of the responses was directly related to modes of perceiving and thinking characteristic of persons in specific nosological categories. It was possible to convince the jury in this case because the responses were more blatant, but the examiner in other cases having to submit illustrations which are far subtler, though at least as meaningful, is at a distinct disadvantage and must fortify himself personally as well as professionally for the contest which a skillful lawyer can wage.

Finally, a custody case is here presented as another example of the tightrope which the examiner may have to walk in presenting both his findings and his recommendations. The concept of "normality" is usually introduced by "the other side", as one which psychologists do not particularly like to defend, and agreement by the expert witness in one form or another is usually obtained. This, then, becomes one area from which attacks on the report and/or testimony are launched: if no one is *really* normal, what *does* the psychologist expect of the parent? if we don't know what is normal, how can we say what is good or bad for the child to remain with one parent or the other? if normality isn't the goal or existent condition, how are the tests equipped to measure personality without some yardstick of normality to deviate from or conform to? A domineering and largely unperceptive father was seeking custody of two teenage children who feared him and who were being reared by the maternal grandparents whom the children loved; the mother had been dead for six years and the father had previously been content to visit the children on alternate weekends, but, having remarried, he wanted to re-establish his family unit over the protests of everyone but his new wife who was noncommittal. Testing was conducted on the father, his son and daughter, the grandparents, and the new wife. The data showed the father to be a paranoid character, aggressive and litigatious, either oblivious of his children's fear of him and the temper outbursts that had led to this residual fear, or determined to assert his "rights" irrespective of the wishes of those most concerned. The children, under their grandparents' care, had apparently adjusted fairly well. The grandparents showed no particular symptomatology, but did evidence a strong determination to fight for custody. The new wife was a passive-submissive and very dependent person with moderate anxiety, with good will and no axe to grind. In awarding continuing custody to the grandparents, the court held that the objective test findings outlining the personality of each person were the decisive factor, even if a definition of normality could not be agreed upon. It is likely that the examiner's decision not to defend the concept of normality but, rather, merely to present the interpretative data with restraint and conviction, in understandable style and logic, and with constant reference to the test material and responses rather than to interpretations which could be questioned, was helpful.

To summarize, then, this paper attempts to present issues in some representative cases where a psychologist has been called to testify on the basis of psychodiagnostic test examination. Kinds of attacks on such expert testi-

mony have been included, although questions of competency to testify (*i.e.*, to qualify as an expert witness) were not dealt with as these have been treated elsewhere. The professional qualifications, such as background, demeanor, knowledge of norms and of specific tests, psychopathology, and "normal" behavior; and the personal qualifications (*i.e.*, confidence, stability, good judgment, humor, ability to anticipate and to think quickly and consistently, possibly even the taste for enjoying a good debate) of the psychologist who is called upon for such testimony were stressed as necessary parts of satisfactory performance in this capacity.

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Social Desirability in TAT Themes

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The recent psychological literature reflects a mounting interest in the operation of Edwards' Social Desirability (SD) variable in personality tests. Edwards (1957) postulated that the bulk of items in the typical personality inventory could be rated on a SD continuum and obtained a .87 correlation between the probability of endorsement of items of a true-false type personality test and SD scale values of these items. Other investigators have provided further evidence that the factor of SD must be recognized as materially influencing responses to self descriptive inventories.

While SD has been investigated primarily with reference to objective personality tests, the studies of Meltzoff (1951) and Rozynko (1959) indicated that it was also an important dimension in a less structured, semi-projective technique like the sentence completion test. Meltzoff found that subjects reacted to different sets of sentence completion test instructions by altering their responses from a social desirability standpoint. Both Meltzoff and Rozynko ascertained that the SD of the sentence stem was significally related to the SD of the response to these stems.

The present study moved a step beyond the partially structured sentence completion test to the more ambiguous picture material of the TAT. It represented an effort to determine whether SD continued to be a factor influencing responses to increasingly undefined test stimuli. Specifically, this research was concerned with ascertaining if the TAT as a projective instrument, nevertheless, provides sufficient structuring to trigger a SD set which accounts for some of the variance in themes.

PROCEDURE

This study utilized the 60 TAT themes found to occur most often by Eron (1950), in his normative investigation of 3000 stories contributed by 150 male subjects. These subjects fell into six groups of 25 persons each: two groups of college students and one group each of non-hospitalized psychoneurotics, hospitalized psychoneurotics, non-hospitalized schizophrenics, hospitalized schizophrenics, and general neuropsychiatric hospital patients. The most frequent themes in this list appeared in almost ten per cent of the stories, while the least frequent had a one per cent incidence. Contentwise the themes ranged from *suicide, war* and *illicit sex* to *belongingness, self esteem* and *aspiration*. These sixty themes were typed on individual 3 x 5 index cards. Five clinical psychologists, working independently, were then asked to Q sort these cards into a seven category, approximately normal distribution. They were instructed to think of the categories as being on a SD continuum with Category 7 subsuming the most socially desirable or acceptable themes and Category 1 representing the themes covering subjects having the least socially desirable connotations. The predetermined number of cards to be placed in each category were:

Category:	7	6	5	4	3	2	1
Number of cards:	4	8	11	14	11	8	4

Intercorrelations between the Q sorts of the five judges taken two at a time are reported in Table I. As can be seen the degree of agreement between judges was high, averaging .79, permitting the ratings to be pooled.

The number of the category to which each of the themes was assigned by the five judges treated individually, was designated as its score. The total

TABLE I. Correlations Between SD Q-sorts of Five Clinicians Considered in Pairs

Clinician	JC	AD	AN	TO	MR
JC					
AD	.73				
AN	.79	.83			
TO	.72	.80	.75		
MR	.83	.83	.84	.85	

of the five scores for every theme was considered to be its SD scale value. Since each theme fell somewhere in the range from one to seven, the minimum SD scale value was five while the maximum was 35, with high scores indicating more socially desirable themes. The SD scale values derived in this manner were correlated with the frequencies of the themes given by all 150 subjects and with the frequencies of themes in each of the six groups of subjects taken separately.

RESULTS AND DISCUSSION

Table II presents the correlations between the SD scale values of the 60 themes and their frequencies of occurrence. It is immediately apparent that none of these even approaches statistical significance, and that only one is in the expected socially desirable direction. These data suggest, therefore, that SD does not influence the overall selection of TAT themes in different diagnostic groups of subjects.

TABLE II. Correlations Between SD Values of TAT Themes and Their Frequencies of Occurrence

Subject Group	Correlations
College students (1st group)	—.05
College students (2nd group)	—.08
Non-hospitalized psychoneurotics	—.06
Hospitalized psychoneurotics	—.14
Hospitalized schizophrenics	—.08
General neuropsychiatric hospital patients	.07
Total group	—.08

These results do not, however, offer information on *individual* tendencies, apart from diagnostic categories, to respond in a socially desirable direction. In his study of sentence completion test stem, Rozynko (1959) reported that the SD value of the stem, operating in combination with the SD orientation of the respondent, contributed to the character of the association. He found that subjects who obtained high SD scores on an independent test of this factor, typically gave responses with higher SD ratings on the sentence completion test. An investigation of individual SD propensities paralleling Rozynko's experimental design could be executed utilizing the TAT in place of the sentence completion test. Edward's SD scale would be administered to a subject population who are also given a TAT. Based on their SD scores on the former test, the subjects would be classified into several homogeneous SD groups and intergroup comparisons made of TAT theme frequencies.

A limitation of both the present study and the proposed investigation of the SD set in individuals, is employing solely as gross an index as TAT themes. Rating more detailed aspects of TAT stories or perhaps even focusing on outcome might provide a more sensitive measure of the SD variable. If, as a result of further experimentation, SD is still determined to be of negligible importance in the more unstructured projective tests, the value of such instruments in circumventing defensive efforts at creating a favorable impression of one's self would be underlined.

SUMMARY

This research evaluated the role of social desirability in the choice of TAT themes. Sixty TAT themes, found by Eron to be most prevalent in two normal and four patient groups, were rated on a SD continuum by five clinical psychologists using Q sort procedure. Interjudge agreement was found to be high, and the ratings were subsequently pooled and a SD scale value derived for each theme. Correlations between these SD scale values and the frequencies with which the themes occurred in each of Eron's

six groups treated separately, as well as for the total of all subjects, were uniformly statistically insignificant, indicating that SD does not contribute to TAT theme variance. Some general proposals for a more refined study of the SD factor related to the TAT were briefly outlined.

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The Intelligence Test As A Psychodiagnostic Instrument

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The extensive utilization of psychoanalytic ego psychology in diagnostic testing has been discussed and developed by Rapaport, Gill and Schafer (1945) and by Schafer (1948, 1954). These workers indicate their preference for the use of a battery of tests, including an intelligence test, with the results obtained from each test being given consideration in the total test analysis. This approach to diagnostic assessment stems from a commitment to psychoanalytic theory and the conception of the patient as a whole person, with adaptive as well as pathological trends, with minor as well as major defenses, and with an organized, enduring ego structure (a prominent aspect of which is conscious cognitive functioning), as well as fluid, affect-laden unconscious processes. An understanding of ego mechanisms and ego functioning is as valuable in test analysis as recognition of the demands of the id and superego. Of equal importance is some conceptualization of the way in which all the various facets of personality interact both among themselves and with the external environment. The inclusion of an intelligence test in the core test battery is an attempt to gain more information about ego processes; it presents the patient with external demands on his ego which are somewhat different than those posed by the usual projective tests. The present paper is an attempt to conceptualize some of the factors contributing to patients' responses to intelligence tests and to demonstrate the usefulness of one such test, the Wechsler Adult Intelligence Scale (WAIS) as a clinical instrument.[2]

The use of an intelligence test as a diagnostic test instrument is not restricted to psychoanalytically oriented clinicians. For example, Wechsler (1958) discusses the use of the WAIS as a diagnostic instrument. However, his approach differs from that of Rapaport both in terms of theory and technique of case analysis. Wechsler tends to view data pertaining to personality variables as supplementary and secondary in importance to "the primary purpose of an intelligence examination"—that is, the obtaining of a "valid and reliable measure of the subject's global capacity." Underlying this division of an individual's responses and behavior into the intellectual and non-intellectual is the basic assumption that a person's "intelligence" exists and is manifested independently of his "personality." It is true that Wechsler recognizes the need for a modification of this assumption, but the techniques he describes for using the WAIS as a diagnostic instrument imply no great change in his original position. Most important, his discussion of the clinical evaluation of intelligence test protocols testifies to the lack of a dynamic consideration of behavior. Rather, it is an almost entirely actuarial approach in which certain diagnostic types of patients are expected to obtain certain types of patterns of sub-test scores. Whatever the validity of such an approach, there is a question of the usefulness of the employment of test material merely to assign a patient to a given diagnostic category.

In contrast, Rapaport and his coworkers viewed the score, or set of scores, a patient obtains on an intel-

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[2] The author is indebted to Dr. Roy Schafer for his considerable assistance in the preparation of this paper. His many constructive comments and criticisms figured prominently in both the theoretical introduction and the presentation of the case material.

ligence test as just one aspect of the test results, and by no means the most important. Their approach to the interpretation of intelligence test material is basically no different from their approach to projective test material. In their dynamic formulation "natural endowment," which the constructors of intelligence tests are attempting to measure, is considered but one facet of an individual's inborn potential. As Hartmann (1958) asserted, the newborn arrives in the world with inborn apparatuses, as well as instincts, or as Ritvo and Solnit (1958) and Escalona and Heider (1959) have suggested, inborn predispositions, in terms of perceptual and protective mechanisms. Through the maturational process an individual's potentialities, among them the ephemeral concept "natural endowment," become differentiated, undergo modification, always interacting with each other, with drive development, and with the forces imposed by the environment. Because intellectual development occurs within the context of other developing potentialities the psychoanalytically oriented clinician cannot view "intelligence" (or intelligence test scores) independently of the patient's total functioning. Working from the same basic position, Fromm, Hartmann and Marschak (1957) have explored various children's intelligence tests and developmental scales to determine what variables, having dynamic significance, play a part in determining test responses. Basic to their investigation is the explicit conception of intelligence as an integral part of the total personality, a conception inherent in psychoanalytical ego psychology.

Regarding the role of intelligence tests in diagnostic assessment, Schafer has pointed out some of the kinds of data which can be derived from such tests.

> Patterns of past intellectual achievement, of current problem-solving methods, and of verbalization, as these are elicited by a standardized intelligence test, almost always illuminate important dimensions of personality, especially if they are approached with relevant concepts from psychoanalytic ego psychology. Beyond establishing general intellectual level, these cognitive patterns reflect established defensive and adaptive policies, characteristic rigidity, flexibility or looseness of ego integration, and the degree to which controls and defense are undermined and the ordinarily impersonal, detached intellectual functions are neurotically or psychotically invaded by primitive impulse representations, conflict, and narcissistic preoccupation. (Schafer, 1954, p. 426)

It is true, of course, that responses to the Rorschach test and the TAT also provide the clinician with information about these variables, especially those *reflected* by cognitive patterns. But it is important to note that the circumstances under which such information is obtained using projective tests are different from those existing in the administration of intelligence tests. Without going into a detailed discussion about the differences between intelligence scales and the usual projective tests— differences in familiarity of stimuli, the degree to which the patient is required to creatively organize his productions, the availability to the patient of consensual criteria against which to check his responses, and so forth—it is important to note one essential difference which may be stated in terms of what the ego is required or encouraged to do when faced with the different tests.

In order to comprehend this difference, it is necessary first to consider the psychoanalytic conception of everyday thought and the concept "levels of psychic functioning." Psychic functioning at any one time can be considered, in part, a reflection of the ever-changing balance of ego and non-ego (id and superego) forces, content, and processes. At one extreme, when the balance is most heavily influenced by externally oriented, realistic, adaptive, and developmentally advanced ego factors, thought processes and behavior are characteristic of

the "secondary process." Content is more or less directly related to external events, and represents adaptive efforts at accommodating to these events. And underlying the content and style of thought, psychic energy is channeled in adaptive, regulating and modulating directions. At the other extreme, thinking is characteristic of the "primary process," in which fluidity, purely affective associations, an absence of temporal, spatial and causal relationships, and other autistic process prevail. Content is expressive of archaic, infantile impulses, conflicts and needs, and primitive anxieties. Finally, the motives are primitive, narcissistic, urgent id impulses and severe, castigating superego pressures, all demanding immediate gratification, with little or no neutralized psychic energy available for impersonal and objective matters. The psychic functioning of each individual (including both the "well adjusted" person and the individual judged to be neurotic or psychotic) fluctuates around a modal level (characteristic to each individual) which lies somewhere between these two hypothetical extremes. The concept of "shifts in the level of psychic functioning" refers to this variation in the relations between ego, id, and superego processes, in relations among the various conscious and unconscious ego processes themselves, and in the degree to which thinking is characteristic of the primary and secondary processes. When the shifts are in the direction of the more primitive and autistic, they can be thought of as regressive. When they proceed in the opposite direction they may be considered adaptive.

In this light, the Rorschach instructions and stimuli (and to a somewhat lesser extent, those of the TAT) may be seen to encourage a regressive shift, a relaxation of ego forces which normally operate to prevent or adaptively modify the passage of unconscious and certain preconscious material into consciousness. Parenthetically it is this regressive shift which, as long as it remains in the service of the ego, contributes to creative ego functioning.[3] The WAIS, on the other hand, by the nature of the types of response processes it demands of the patient, discourages regression. It requires the application of purely reality-oriented thought processes which are addressed to the external problem at hand and which are uncontaminated by trends in unconscious fantasy life. In projective test situations the ego is encouraged to dip into unconscious sources to enrich its creative productions. Intelligence tests require no such elaborated enrichment. Indeed, good responses to intelligence test items require that the patient avoid this kind of ego activity.

In the psychotic patient the boundaries between the conscious ego and the inner complex made up of the id, superego and unconscious ego are relatively more permeable than is the case with the non-psychotic patient. One indication of the extent of the permeability (and thus an indication of the nature and degree of the pathology), is the ease with which regressive material enters consciousness and can be discerned in what should be pure secondary process functioning. Because the demands of the WAIS, unlike projective tests, do not contribute to an increase in the permeability of the barriers between conscious and unconscious, the WAIS provides a setting in which supposedly reality oriented ego functioning can be scrutinized for representations of regressive trends and where this functioning should be free from such trends. Thus the WAIS can be employed as a valuable aid in making detailed and useful diagnostic descrip-

[3] The reader is referred to Schafer (1954, 1958) for a discussion of regression in the service of the ego and a more comprehensive explication of the concept levels of psychic functioning. It is emphasized that these are not the only ways in which repressive and obsessive compulsive defensive strategies are manifested in intelligence tests, nor do these expectations have to be fulfilled to arrive at such diagnoses.

tions of patients whose projective test protocols suggest psychosis or psychotic trends. For example, the WAIS often provides an estimate of a severely regressed schizophrenic patient's adaptive potentials when his projective test responses reflect little else but confusion, indications of primary process thinking, and despair. Put another way, the psychotic patient, supported by the realistic demands imposed by the intelligence test, often is able to remain relatively organized or to "pull himself together" and his WAIS protocol will reflect his ability to avoid and compensate for the psychotic disturbances. The borderline psychotic patient's responses to the WAIS are equally worthy of consideration by the psychologist. In discussing the diagnosis of borderline schizophrenics, Shapiro (1954) uses the term "clean" in reference to intelligence test protocols. In such a protocol, one tends to find few indications that regressive processes are interfering with intellectual functioning in a blatant way, *under the conditions inherent in the administration of the WAIS.*

In the neurotic's responses to the WAIS one tends not to see evidence of psychotic mechanisms and content. However, the protocol does provide an opportunity to observe the manner in which the patient's defensive efforts operate, and how successfully or unsuccessfully they handle the affective and fantasy stimulation offered by the items. The clinician can see the various interactions between certain of the items, a particular patient's primary defensive strategy, and the impulses against which the defenses are most particularly directed. Also of great importance is the over-all relationship between the personality structure and the modes and efficiency of intellectual functioning. For example, in the responses of a patient whose personality organization is along hysterical lines, and whose defensive efforts are not entirely successful, one might well find the following. Some disturbance in functioning may occur in his responses to items having to do with marriage or reproduction, because of the paramount importance of sexual impulses in the patient's unconscious fantasy life. As one result of the emphasis on repression as the major defense over a long period of his life, we might also expect that his verbal score, as well as the style and quality of his responses reflect a development of intellectual and cultural interests that is weak relative to other cognitive developments, such as those involved in non-verbal tasks. The obsessive-compulsive patient, on the other hand, might show an intellectualistic preoccupation throughout the test protocol and thus achieve relatively high verbal scores. Moreover, affective disturbance in response to sexually relevant items may be absent, and his responses to such items may indicate the strength and rigidity of his intellectualistic, isolating defenses. However, considerable reduction in over-all intellectual efficiency may result from meticulous concern with details, the citing of all possible alternatives in his responses, and an inability to limit himself to the best possible alternative because of obsessive doubting. These are, of course, examples of only the most undeveloped and crudest sorts of inferences which can be made from test material. In a recent paper Schafer (1960) illustrates the value of an assiduous application of the projective hypothesis and psychoanalytic ego psychology to test material, including WAIS responses, in a study of ego functioning in neurotic patients.

The value of content analysis of WAIS responses lies not only in the discovery of hypotheses about a patient's fantasy life, his major orientations, defenses, and needs, and the nature and intensity of his conflicts. Projective tests usually provide much richer sources of hypotheses in this re-

spect than intelligence tests and in test analysis any speculation arising from the content of WAIS responses should be checked against the projective test protocols to assess its value to the total psychodiagnostic formulation. However, if a given theme coexists in both kinds of tests, (1) its emergence under the conditions imposed by an intelligence test indicates its special significance, and (2) in line with the foregoing discussion, the formal characteristics of its expression (regressive or progressive) will indicate the extent of regression with which it is associated. Moreover, many Rorschach and TAT responses have several meanings and implications, so that how the themes inherent in such responses are expressed in the WAIS often helps clarify which facet is the dominant one, at the same time as it provides more information on how such themes are experienced and utilized by the patient.

In order to illustrate the clinical usefulness of intelligence tests the remainder of the paper is devoted to the presentation and discussion of WAIS responses obtained from three patients chosen in an attempt to cover a range, however limited, of psychopathological problems. The discussion focuses on both the content of the responses and the kinds of cognitive functioning which they demonstrate. Taken by themselves, many of the interpretive comments on response content may appear to be speculative and highly tentative, but are typical of the types of hypotheses which can be derived from the WAIS to be considered further in relation to other data. Since any unit of behavior can be determined by a variety of motives and therefore may have several meanings, the interpretive comments are not the only ones which could be offered but were selected on the basis of all of the test material available for each patient. That is, other interpretations were considered in the original test analyses but those selected for presentation here were the ones which, in the light of all the test material from both projective and intelligence tests, were most pertinent to the final psychodiagnostic description. The discussion does not take up the formal scoring of the intelligence tests, except as regards the use of I.Q.'s as indicators of the general intellectual level. Complete interpretation of any WAIS protocol involves more than qualitative analysis, of course, since not only are subtest scores and comparisons of Verbal and Performance scores useful as indicators of possible trends, but intra-subtest analysis of the patterning of successes and failures are helpful in evaluating such aspects of ego functioning as momentary lapses in attention and concentration, for whatever reason they might occur.

Before presenting the case material, a brief statement about the manner in which the tests were administered is in order. This involves close adherence to the WAIS manual with several additional procedures. First, all verbalizations, both responses and other comments by the patient, are recorded verbatim. Second, the patient is asked to relate the story told by each of the last two Picture Arrangement items, after he has finished arranging the cards and they have been removed by the examiner. He is also asked to do this on any previous item of this sub-test which was failed. Third, a Story Recall item is administered within the context of the WAIS. And finally, the examiner attempts to ascertain, just as he does with the usual projective tests, what is involved in disruptions in functioning. For example, he asks the patient to explain further all highly charged or peculiar verbalizations, and he may seek to determine whether or not the patient remembers the items correctly, or how he went about solving one of the problems. The emphasis is on process at least as much as it is on achievement.

The first case is that of a 21 year old, single, male college student whose

presenting symptoms were anxiety, difficulty in socialization, compulsivity, and self-preoccupation. He had been hospitalized, at his own request, about three weeks prior to the psychological examination. The diagnosis which was advanced on the basis of all of the test material was schizophrenia involving prominent paranoid mechanisms as well as strong trends toward social isolation. Furthermore, the test report stated that while indications of a general and progressive decline in the patient's level of function were not present, it appeared that the schizophrenic process was well established and one of long standing. The clinical material was in agreement with the psychologist's diagnostic formulation.

The WAIS protocol can be looked at from two standpoints: The patient's utilization of obsessive compulsive mechanisms and the invasion of his intellectual functioning by regressive content and modes of thought. These two aspects of his functioning are not, of course, mutually exclusive and in some instances one can observe the use of intellectualization in a response which includes autistic features. In other instances, responses suggest that the focus of the intellectualistic efforts is directed towards the acute difficulties in ego functioning which emerge as part of the schizophrenic condition, such as diffuseness of body boundaries.

The Responses

(What is the main theme of the book of Genesis?) "Not to, not to, ah, wait a minute. Oh, the fact that Adam sinned and that's why we are as we are. Might also say creation." (Examiner asks the patient to choose the best answer). "I think the first one, about Adam and Eve sinning."

In this response we see the concern with guilt characteristically associated with obsessional trends. Other aspects of the response are not typical of the neurotic, however. First, the assigning of primary importance to the "sinning" (despite the recognition of the more general concept of creation), while it is factually and in some ways psychologically quite correct, seems to have been made more on the basis of affective values than on the typical impersonal values. A neurotic patient would not deliver this idea as a test response even though it might well be stimulated by the question. Secondly, a strong concern with his own self-definition and worth is reflected in the response, "that's why we are as we are," a pressing concern of schizophrenics.

(What is the thing to do if you find an envelope in the street that is sealed and addressed, and has a new stamp?) "Sealed, addressed, and has a new stamp on it. If somebody was nearby I might pick it up and ask them if they dropped it or if there was no one around I would just leave it there."

Here is a striking suggestion that the patient tends to fall into helpless, dependent states. His approach to the item also indicates a pathologically concrete, child-like assumption of immediacy of occurrence.

(What does this saying mean, strike while the iron is hot?) "Take advantage of the situation when it's there. Get something at the most opportune time. For instance, pick the fruit of the tree while it's at the right spot, spot of ripeness before it gets overripe."

In addition to the oral-receptive emphasis on receiving rather than action, the introduction of over-ripeness suggests concern with body deterioration and decay. A feeling that his own developmental requirements or trends have been and will be neglected is also suggested. A past reference to the mother's unreliable breast—good at one time and bad at the next—may also be speculatively considered.

(What does this saying mean, one swallow doesn't make a summer?) "One run doesn't win a ball game. Winning one bout doesn't win a prize fight."

Fluidity of conceptual boundaries resulting in the substitution of "bout" for "round" is emphasized by the patient's failure to monitor and correct this lapse in ego functioning. The content of the patient's analogy suggests an orientation toward life as a competitive, battering experience. A sense of discouragement in the face of momentary success in this struggle is also implied.

(Price of a dozen cans at 2 cans for 31 cents) "A dollar and ninety two cents." (How did you get this answer?) "I divided 2 into 31, well, it would be 15½, but they add in the half-penny, so 16 times 12 equals $1.92."

The patient's arithmetical ability is indicated by his response time of 14 seconds. However, the contamination of the calculation by related, but inappropriate information indicates his inability to maintain the independence of concepts and of intellectual operations. The content of the response, particularly "but they add the half-penny," suggests an assumption that others take advantage of him which is striking in the way it is expressed with such certainty.

(Picture Arrangement, Item No. 8, Taxi) The patient completed the arrangement SALMUE in 1 minute 55 seconds. He then explained the sequence as follows: "He's carrying a statue of a girl, gets in the taxi, gives orders to the taxi driver, brings the statue close to him. He looks around, and I guess he finds he's going in the wrong direction, and is startled."

The "giving of orders" is an idiosyncratic addition which is barely supported by the pictures, and may reflect grandiose paranoid ideas. "Going in the wrong direction" is a virtually unique response, and may have reference to paranoid suspiciousness, especially following the explicit statement that the man gave orders to the driver. Moreover, it raises a question of whether or not the patient experiences a sense of spatial disorientation from time to time. In addition to these aspects of the response, the fact that his explanation avoids the usual story with its sexual tinge cannot be overlooked in considering the defensive and regressive aspects of the response.

In examining all of the quoted responses, as well as the rest of the protocol, it is important to note the manner in which the patient delivered his responses, as well as his own reaction to them. The patient expressed himself with a sense of detachment and sincerity, as if there was nothing out of the ordinary about his responses. Moreover, once he responded, no matter how much ego regression or affective intrusion was involved, he "accepted" his response. Consideration of the protocol from this point of view is of considerable assistance in assessing the patient's position vis-a-vis the psychotic process. Impairment of the crucial ego functions of reflectiveness and self-criticism is indicated. That is, this patient does not seem to be aware of the disruptive manifestations of his pathology, and is not struggling to gain a less psychotic position. Evaluation of the patient's attitude towards his own behavior is meaningful not only in the descriptive sense, but in attempts to answer questions concerning severity and chronicity of the pathology. Thus, it is of value in estimating prognosis. On the basis of how the patient expressed himself, the lack of struggle and turbulence suggested by his responses, the clinician would have to lean towards a diagnosis of chronicity, i.e., extensive segments of the ego having succumbed to regressive changes.

The second patient is an 18 year old male who was tested shortly after being hospitalized. Like the first case, his projective test responses indicated a schizophrenic process and paranoid trends. He obtained a Full Scale I.Q. of 121. In general, his WAIS responses show considerably more agitation and concern about disruptions in ego functioning than was observed in the first case.

The Responses

(When is Washington's birthday?) "I don't know." (Guess) "I'd rather not. I don't even know that! I think it's in the fall or something."

While failures on this item are not uncommon, even for individuals with the patient's intellectual capacity, the fact that he did not know the time of year in which Washington's birthday occurs must be considered a significant disruption. Why he failed the item in this way is a question about which we can only speculate. It may have something to do with the concept of birth, or perhaps it is related to a particularly anxiety arousing association to father figures. Of special significance is the despair and hesitancy to become involved in uncertain intellectual activity which is reflected in his verbalizations. He experiences the disruption in functioning as an alien process, something tragic that is happening to him. This theme is repeated throughout the test.

(How many senators are there in the United States Senate?) "You want a guess because I don't know? I think there's about – would 48 be a bad guess?"

Again we see how he perceives himself in a disparaging way. Yet, he attempts to externalize the criticism by putting his question to the examiner. The result would be a tendency on the part of the patient to believe that the examiner sees him as being stupid, just as he himself does. The projective trend is not complete or crystallized, however, in that it does not emerge as a conviction about the examiner's attitude and does not alleviate his own self-disparagement. This consideration contributes to the diagnostic inference that the patient has not achieved a predominately paranoid position, and there exists at least a potential for movement in the direction of depressive trends.

(What should you do if while in the movies you were the first person to see smoke and fire?) "Talk to an usher."

This peculiar verbalization—"talk to" rather than "tell" or "inform"—can be looked at from at least two points of view. In terms of the operation of defenses it may reflect an overdetermined effort at casualness, and thus an attempt to avoid the real anxiety engendered by thinking about a situation such as a fire in a theatre with its potential for arousing fantasies of being trapped, devoured by flames, trampled and losing control. If the response is looked at from the point of view that this boy is schizophrenic, it may very well reflect the difficulties in communication commonly experienced by schizophrenics. His response reflects a degree of immobilization in interpersonal action. Prior to the onset of his illness, it is likely that he would have responded with a more appropriate answer, but in his present condition the simple act of making contact with someone —"talk to"—may have assumed an importance greater than the content and purpose inherent in the communication.

(Why should people pay taxes?) Patient repeats the question with the accent on "should." "To give the people they elect to govern them some kind of power. That's a grubby answer."

Paranoid concern with power is denoted in this response. However, of more importance than the content implications is the fact that the emergence of the concern is so strong that a correct, (and rational) response is not forthcoming. Again, note the patient's discomfort resulting from the intrusion and the implied swing from a paranoid to a depressive position.

(Why are people who are born deaf usually unable to talk?) "They have no sound to imitate. There's a better answer there but I can't pull it out."

The patient again expresses his concern about the impoverishment of ego functioning. The literal meaning of his remark—"I can't pull it out"—as regards his inner experience should not be overlooked. It suggests a feel-

ing of being cognitively transfixed, unable to manipulate concepts, ideas, and basic facts, as if he has an awareness that within him there exists the wherewithal he needs to deal with the external world, but this capacity is embedded in an unyielding reservoir of glue. Looking at it from the point of view of the patient's psychic energy, it suggests a depletion of, or at least the inadequacy of, the strength available to him for impersonal, externally oriented intellectual activity.

(Why does the state require people to get a license in order to be married?) "Because there's a—(encouraged to go on)—Yeah, but, but, because there are certain customs connected with marriage that aren't acceptable without marriage. There's an old legal—no, that's a crumby answer too. I don't know why they do. I think I'll write a letter to my congressman."

A quotation from the test analysis which referred to the patient's projective test responses will contribute to an interpretation of this disrupted response. The analysis stated "in the face of material directly suggestive of heterosexual activity he becomes fearful, feels impotent, and withdraws from the situation." It seems obvious that for this patient a reference to marriage constitutes external stimulation which engenders fantasies too threatening for realization. Psychic energy is directed in such quantity towards the suppression of the fantasies that little is left for rational consideration of the relatively impersonal problem at hand. In the end, the patient is left in a helpless position, seeking (with facetious self-disparagement, the assistance of some powerful (masculine) benefactor.

Of equal significance is the fact that while the intellectual efforts were impoverished, the defenses against the fantasies were maintained, and no affectively loaded content appeared explicitly in the response. The relative success, in this instance, of the defensive efforts contributes to the final comprehensive diagnostic formulation.

($60 less 15%) "Fifty-six dollars. Yeah, fifty-six dollars. I multiplied .15 by 60. Is that what I did? No. As a matter of fact it's wrong. Yeah, four times 15 came out 60. Well, it's wrong figuring but I think it came out all right. Oh well, my figuring was all off."

Confusion in carrying out simple arithmetical operations (of which this patient seems to have been capable at one time), is evident. A real lapse in reality sense is indicated by his statement that "it came out all right," suggesting that despite the rejection of and resistance to psychotic processes indicated in other responses, there is a definite tendency towards the acceptance of unrealistic thinking. The clinician must therefore recognize that the regressive trends are not completely alien to the conscious ego. That is, the response indicates some readiness for ego-syntonic, unrealistic, regressive modes of functioning. Although this is the only response in which such a trend can be easily discerned, it must be considered significant.

(In what way are an egg and a seed alike?) "Both — ah — both (laughs) embryonic things — both living. (Choose best answer). Both living—no, I changed my mind, both embryonic. It's more definitive. You got a cigarette? I thought I wouldn't need one but I do."

Two aspects of this response are worthy of comment. First, his conceptualization of seeds and eggs as "living" is an overextension of the concept "life," and suggest powerful, intrusive concerns with life and death. Second, this item's role as a stimulus to sexual associations and fantasies cannot be overlooked. It is possible that the intellectual inefficiency of the response is connected with the sexually stimulating quality of the item. Moreover, it is probably not fortuitous that the patient felt that he needed a cigarette at this time, when the test

format did not present a natural break in the pace of the examination. In his request for a cigarette we also see a suggestion of the nature of his attempts to adapt to the ego-alien psychotic process. He says "I thought I wouldn't need one, but I do," suggesting that he makes conscious, anticipatory attempts to overcome any anxieties and breakdowns in functioning. Moreover, it is a confession of his helplessness and, in a sense, a plea for help. It is noteworthy that both the suggestion that item content with sexual relevance may lead to a reduction in ego efficiency and the resulting feeling of helplessness and dependence emerged in his response to a previous item (Why does the state require people to get a license in order to be married?).

(Picture Arrangement, Item No. 8, Taxi). The patient successfully completed the item in 22 seconds, and was asked to relate the story told by the pictures. "Well, fellow walking along with a clothing store dummy, upper half. He gets a taxi and he looks out and figures it's pretty incriminating to have anyone see so he puts the dummy on one side and rides on the other. I'll be very inhibited."

The word "incriminating" has too strong a legalistic connotation to be appropriate here. It suggests paranoid watchfulness and suspicions, related to the projection of severe and irrational superego impulses.

(Object Assembly, Item No. 1, Mannikin). Patient solves the item in 19 seconds. "Little boy in a girl's playsuit."

This verbalization suggests concern with sexual identity, a suggestion which is supported by other responses within the test. Note, however, that while the item stimulates such a verbalization, no severe disruption occurs in the functioning required by the item. By perceiving the boy as "little," and therefore "excusing" the wearing of female attire the patient may have achieved enough distance from the item so that the stimulation of disturbing fantasies was reduced. Of course it is equally plausible that since this item requires very little in the way of complex intellectual processes the patient could carry out the task without his performance being noticeably affected.

(What does *impale* mean?) "To be transfixed, to be stuck with something. To be fixed to a certain place by something. I think you can be impaled by a word or a glance just as by a sword or a spear."

While the patient's inclusion of the visual connotation of the word is significant in that it reflects concern with the actions of others, possibly indicating that in a paranoid way he may attribute magical powers to them, the response would remain of clinical interest without this addition. The fact that he assumes the passive position, the *object* of the verb impale, is of equal interest. It is in keeping with the picture of him which the test material as a whole presents: that of a boy threatened not only from within by regressive movement, but also as a consequence of his projections, threatened and extremely frightened by the external world. In terms of cognitive functioning, it is noteworthy that the patient actually defines the word "impaled," and not "impale," and thus is guilty of a perceptual distortion. That the consequence of the distortion, his response, so clearly fits in with his pathology supports the general rule that perceptual distortions, as well as peculiar verbalizations and other disturbances in ego functioning, are best regarded as not fortuitous; most often they signify some underlying motive or content related to the individual's inner conflicts or disturbances of ego organization and level of functioning.

The third patient, a 37 year old, married woman, was about to enter psychoanalysis when she was tested. The test results as a whole indicate a primarily hysterical personality organization, with emphasis on repression as the chief defense, affective excitability, guilt, and fantasy themes

of castration, fear of and aggression towards men, and oedipal longings for the father figure. The primary purpose in presenting a few of her WAIS responses is to demonstrate (1) the manifestations of her personality organization in her intellectual functioning, and (2) the absence of the kinds of autistic content and processes observed in the previous records.

One aspect of the patient's history is important in the evaluation of her responses. About eight years prior to the time she was tested she had taken a course in psychological testing, and had become familiar with the Wechsler Bellevue Intelligence Scale. The score she achieved on the WAIS, Total I.Q. of 127, probably reflects this familiarity, but the obtained I.Q. was judged to be a fair estimate of her intellectual level, since disturbances in her concentration during the test were thought to balance any advantages due to her experience with the Wechsler Bellevue.

The Responses

(How does yeast cause dough to rise?) "Oh, my Lord! What is yeast? I know what it is; don't write that. I guess when it is heated it expands."

The momentary disruption in effective intellectual functioning here is noteworthy. Her responses to all of the previous items, with the exception of one, were prompt and to the point. Although one can only speculate as to why the patient's equilibrium was upset by this item, her response does indicate one of the ways she tends to react when faced with a situation in which she feels inadequate, either in terms of her ability to maintain her defenses, or in terms of her intellectual adequacy as judged by others. That is, she momentarily falls into a helpless, inarticulate state, but is able to recover and give an adequate response. Her way out of the initial collapse is sound in terms of appropriate ego functioning.

(What is the Koran?) "The Koran is the—religious book, Bible of—Koran—the Persian Bible."

This response is striking because the same item is included in the Wechsler-Bellevue Scale. Here we have definite evidence of the loss of previously acquired information, which is in keeping with the emphasis on repressive defenses.

(Why does the state require people to get a license in order to be married?) "Oh—Because marriage is a legal—enterprise (laughs) and certain tests have to be passed before a license can be granted and there are certain requirements of age.—To be sure you pass the prerequisites."

The patient is again momentarily speechless (for the first time in the Comprehension Subtest), and then sets out to remove from the item any of its interpersonally intimate connotations, a move which can only be viewed as a defensive maneuver. Her laugh (which was rare during the test) seems to reflect not only her own discomfort but suggests that she recognizes, in part, the necessity for defensive efforts. It is as if she is saying, "There is more to marriage than the legal papers, but let's not think about that." A defensively stable person, in contrast, could deal with the item impersonally and unself-consciously to begin with: the problem she encountered would simply not arise. Also, her selection of the requirements for marriage as the focus of her response cannot be considered fortuitous. It suggests concern with her ability to meet the requirements and demands of marital partnership, and perhaps even a fantasy that she entered into marriage under false pretenses. This is not out of line with the total picture the test results indicate. That is, the patient's oedipal longings for the father figure restrict the degree to which she could have entered marriage as a woman with mature sexual impulses and the amount of freedom from pregenital concerns necessary for a fully age-appropriate marital relationship. In part her husband prob-

ably has served as a father substitute.

($400 = 2/3 of what amount?) "Three into four is one. It is $300—no! That's less. What did you say?" (Examiner repeats the item). "Two thirds of what it cost new. I'd be marvelously clever—Can't do it.—Oh! No."

This response exemplifies the impairment of ego functioning to which the patient is subject. Whether or not she could solve the problem under the best of conditions is not the most important question here. What is noteworthy is the degree to which she flounders and the attention disturbance indicated by her request that the item be repeated. It is also noteworthy that despite the disruption of functioning, no unrealistic solutions such as occurred in one of the previous cases are attempted in any of her test responses. The failure of the patient to utilize more primitive modes of thought and the lack of autistically relevant content anywhere in her WAIS responses, despite disruption in cognitive functioning, suggests that the boundary between conscious and unconscious processes is well maintained.

(How are wood and alcohol alike?) "That was a question on the Wechsler Bellevue that I never knew. Some chemical thing that I just don't know."

Unlike the patient's response to the Koran item, which indicated the loss of previously acquired information, here the response suggests that there are some circumstances under which she may have significant difficulty learning material in the first place. This particular item seems to have a masculine connotation for the patient, in that she says "some chemical thing." Other responses in the WAIS protocol clearly indicate that she tends particularly to avoid the acquisition of scientific material, and has the most difficulty in manipulating this kind of material. A list of the items she fails is strongly weighted in the direction of things having scientific, masculine, assertive or sexual relevance. For example, in response to, "At what temperature does water boil?" she said, "Physics, oh goodness, I'm stupid, 120°. Couldn't be that, 160°." On picture completion her only failures were the Bulb and the Horse item, the former perhaps having sexually ingressive connotations, and the latter a masculine quality of strength. In the story recall test she distorts that part of the story dealing with masculine, assertive action. And, although she finally responds adequately in her interpretation of the saying, "Strike while the iron is hot," her initial response to the item reflects impairment in ego functioning, and she verbalizes, "that's the most inarticulate thing I've ever said." In her intellectual limitations and inefficiencies, there is suggested a link between on the one hand the information-gathering function of the ego and intellectual mastery in general and, on the other, masculinity, and there is implied precarious repression of phallic strivings—a configuration frequently noted in the WAIS performance of hysterical women.

The responses given by the three patients and presented here provide interesting comparisons. In terms of formal ego functioning, the first patient operates at the lowest level, using concrete imagery, affective associations and arbitrary reasoning. The second patient seems to be attempting to avoid regressive modes of thought, but on one occasion he did slip away from realistic, logical thinking, indicating that regressive changes in the ego are already present. The third patient showed disruptions in efficient ego functioning, but she either managed to recover and deliver a reality-oriented response or she professed her ignorance or inability to deal with the item. At no time did autistic, unrealistic, illogical modes of thinking show up in her intellectual functioning. As for the content, the first patient's responses seem to reflect most directly id and superego impulses, and autistic, infantile concerns. This ten-

dency is less prominent in the second patient's responses, wherein are seen striking reflections of his struggle with the encroachment by regressive processes upon mature, rational ego functioning as well as suggestions of the patient's utilization of projection and self-disparagement. The kinds of impulses and unconscious fantasy activity which the third patient finds the most difficulty in dealing are less directly represented in response content, but can be inferred from the items causing the most disruption in intellectual functioning. Similarly, her defensive efforts can be observed in the way she attempts to deal with the test questions, as well as through the restriction in the availability of certain kinds of information to consciousness.

One important aspect of each patient's functioning, its variability, is not indicated by the responses cited. Had the complete intelligence test protocols been presented, the reader would have seen how the first patient's intellectual functioning varies from the abstract to the concrete, from the rational to the irrational, and from reality-oriented to drive oriented. Similarly, the reader would have noted that the second patient was not always in conflict, but at times was realistically confident, and that much of the time the third patient was able to function in a highly efficient, dispassionate manner. In a sense, it is unfortunate that the complete protocols could not be presented, since it is this variability which, in part, highlights the inhibiting and disruptive effects of neurotic mechanisms, regressive processes and autistic concerns upon cognitive functioning.

Summary

The present paper is, in part, an attempt to conceptualize from a psychoanalytic point of view the position intelligence tests occupy within total test batteries used in psychodiagnostic evaluations. This conceptualization focuses on the differences in demands made upon the ego by the various projective and "nonprojective" tests, and in this regard utilizes the concept "levels of psychic functioning." The remainder of the paper is devoted to illustrations of the use of an intelligence test, the WAIS, as a diagnostic instrument. Test responses from three cases differing in their final diagnoses are presented and discussed in terms of their formal aspects and content significance.

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BOOK REVIEWS

David, Henry P. and Brengelmann, J.C., (eds.). *Perspectives In Personality Research.* New York: Springer, Inc., 1960. 370 pp. $7.50.

"Perspectives in Personality Research" is a group of readings selected from the 15th International Congress of Psychology held at Brussels in 1957. The ostensible aim of the book is the "effective penetration of ideas on the international level." Consequently, the reader might expect to learn about personality research in countries other than his own, and he might also expect some degree of integration. Instead he will find a book of unrelated readings, hardly deserving publication in any form, the majority of which originated in the United States. It begins with an "Overview" by Henry Murray, followed by 13 papers divided into three sections called respectively: "Explorations in Behavior", "Person Perception", and "Resources". There is a commentary at the end of each section and a final chapter on the International Congress.

The commentaries attempt to integrate the papers in each section. They are completely superfluous. The only section where the papers do have some relationship to one another is that on person perception. Murray's "Overview" is disappointing. In his attempt to show "how the various investigations fit into the broad picture of personality research" he produces a pedantic and flowery essay almost totally devoid of meaning. Long lists of adjectives upset and confuse the reader. The notion of a man from outer space, Mr. X, who "overviews" personality research is too far out and makes the paper even more difficult to follow. Trite metaphor is used constantly so that each sentence becomes a matter of symbolic interpretation. Consider the following sentence from page 37:

> Of course, if the majority of personologists — in accord with present experiential (phenomenological, existential) trends — do return to the naturalistic facts, they will be greatly advantaged by the purifying mentations of today's more fastidious theorists and in retrospect will gratefully bless them for their illuminating treatises, most particularly for their demonstrations (instead of mere hunches) as to why, in the sphere of personology, perfection of diction and of definition is highly correlated with paralysis and barrenness.

This sentence exemplified the whole paper.

Two of the contributions, one by Daniel Miller and the other by Gerald Blum, are extremely important and deserve more widespread circulation than they will achieve in this book. Miller's paper on denial in fantasy is a well-written, scientific study of a defense mechanism and shows a promising trend in psychoanalytically-oriented research. The most significant paper of all is Blum's integration of learning theory and psychoanalysis. This reader was disappointed when Miller and Dollard's attempt to do the same turned into nothing more than a justification of both theories by one another. Blum's theory is a synthesis of learning theory and psychoanalysis rather than a simple equation of the two; i.e., he uses each one to correct the other and comes out with something different from either one of them. Hopefully, he will publish more on this subject.

One final question: why are we being plagued with so many books of unrelated readings? Has the drive for publication become completely autonomous?

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Gottsegen, Monroe G. and Gottsegen, Gloria B. *Professional School Psychology.* New York: Grune & Stratton, 1960, Pp. 292, $7.75.

The relatively new and rapidly developing field of school psychology is fraught with questions, controversy and confusion. Practitioners and practices have their roots in both clinical psychology and educational guidance. Various emphases are given to one or the other of these depending upon the particular school system. This volume, therefore, is a welcome review of school psychology.

The editors, themselves clinical psychologists with experiences in the schools, present twenty-two articles contributed by distinguished persons in education, sociology, clinical psychology and psychiatry. The latter two have the greater proportion of articles and, in the reviewer's opinion, the greatest value to the practicing school psychologist.

An extensive and diversified coverage of related topics is subsumed under four major sections: 1) The School and the Community; 2) Psychological Skills and Techniques; 3) Adjustment Problems of the Major Groups of Children; and 4) Looking Ahead.

Section one, consisting of seven articles concerned with the school and community, is mainly a social-cultural approach and includes urban and suburban problems, deprived neighborhood influences, and the effects of prejudice upon the school child; also the utilization of social services by school personnel. The first section is for the most part an interesting review of important facts which the practicing school psychologist should have acquired in graduate school or earlier. One article in this section, however, appears as a gem of psychoanalytic insight. Here Dr. Otto Spranger analyzes "The Psychodynamic Structure of the Teaching Faculty" in terms of the unconscious projection of the family structure. This insight into individual teachers' underlying motives and the psychodynamic atmosphere of the whole school as described by Dr. Spranger is essential if the psychologist is to function effectively.

Section two, "Psychological Skills and Techniques", has an article on group intelligence testing and another on individual testing including projective techniques. The remaining six articles deal with such treatment areas as group psychotherapy adaptable to classroom use; psychotherapy with the adolescent; treatment of the disturbed child and his parents; managing children's problems in the classroom; treatment of school phobia; and specialized school consultation procedures, i.e. advice from community clinicians. In this group of articles there are valuable suggestions for the school psychologist in diagnosis and treatment. However, a greater part of this knowledge and these skills are presented superficially and are rudimentary to the practicing school psychologist. This section is more than redeemed by its combined descriptions of group therapeutic methods for children, parents and teachers within the school setting.

The third section of this volume extends the previous section and deals with specific problems which are likely to confront the school psychologist. These are the mentally retarded and slow learning, the gifted, the neurotic, the delinquent and borderline psychotic child. This nosological presentation is rather general due to the limited space of a single volume. For the same reason there is a paucity of case illustrations. Thus various psychiatric disorders are alluded to but not sufficiently described with the exception of a detailed discussion of differential diagnostic signs for mental retardation and brain injury. The psychoneuroses are especially slighted. The "neurotic child" is described as a single entity in terms of general symptoms such as inner conflict, chronic anxiety and certain common overt behavior. There is a brief explanation of the neurotic child's interpersonal and learning problems but very limited discussion of psychodynamic and differential factors. Similarly limited space is accorded the complex process of treatment.

Despite these marked limitations there are spots of very useful information for the school psychologist. Noteworthy is the article "The Borderline Child in the School Situation" in which Drs. Rudolf Ekstein and Rocco L. Motto describe the child who fluctuates back and forth from normalcy or neurotic adaptation to psychotic states. They demonstrate a way of keeping these children in the regular school during their prolonged clinical treatment, with close cooperation of parents, teacher and therapist. This treatment plan as described by Ekstein and Motto may well be the most important contribution to this volume addressed to school psychologists. The school psychologist is in a strategic position for making the plan work. His major task is probably to influence school personnel in accepting the seriously disturbed child in school and to secure their participation with satisfaction in the child's treatment. We have here an example of an interdisciplinary treatment method — an approach which has increased considerably and successfully in recent years but has met with too much resistance by members of all disciplines.

The last section of this book, "Looking Ahead", has a discussion of research techniques with especial emphasis on the role and contribution of the school psychologist. The chapter entitled "The Future of School Psychology" by Harriet C. O'Shea presents a general overview of the various functions and expectations of the school psychologist who provides special insights and skills as part of an educational "team". Dr. O'Shea points up the great need for psychological services in the schools and the increasing demand for highly trained school psychologists. As a member of the Thayer Conference (1954) on the training and qualifications of school psychologists she is in accord with the objective of a Ph.D. in psychology and education and a place in the field also for the school psychologist with a master's degree, the latter

receiving direction from the former and having less extensive responsibility. The question of qualifications for the school psychologist has become increasingly more acute in view of the trend toward more psychodiagnosis and psychotherapy of children in school. The treatment of children with emotional problems is urgently needed—a need which has not and probably will not be met by child-guidance clinics and private practitioners. The question of who should treat and the nature of treatment is controversial and is reflected in the biases of contributors to this volume.

The trend is for school psychologists to be clinicians in every respect. Their unique specialization is that of working in the school with the same gamut of cases as any clinician meets outside the school plus a considerable number of learning problems. This book, *Professional School Psychology*, provides to a large extent a general body of common understanding for school psychologists. Although its broad coverage tends to dilute important topics of interest to practicing psychologists, the volume can be of great value as a basic reference for students interested in the field and those who are neophytes. It can be of use also by the experienced school psychologist as an aid in interpreting his functions to school personnel and persons in other professions. One would want to add considerably more, perhaps another volume, with reference to the complex *consultant* role of the school psychologist. This is wide open for future development.

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Klopfer, Walter G. *The Psychological Report: Use and Communication of Psychological Findings.* New York: Grune & Stratton, 1960. Pp. ix and 146.

In his foreword to this book, Leopold Bellak writes: "If one were to study the development of clinical psychology in the recent past, one could do worse than to investigate a cross section of reports written, say, over the last ten years." Considering the fact that the psychological report is a primary document of psychology as an applied science, a permanent record of our methods of personality study, as well as a personal document of the psychologist who wrote the report, it is surprising and almost appalling that so little serious attention has been given to it. Prior to the publication of the book under review, only a handful of journal articles and one book, Hammond and Allen's *Writing Clinical Reports* (New York: Prentice-Hall, 1953), were devoted to the subject.

Klopfer states that the scientific report should be written in a style which emphasizes accuracy, integration, readability, clarity, and individuality. Using these criteria, his book gets a high rating. In many ways it is written like a good report, being comprehensive but concise, well-organized, and including summaries where needed. Detailed attention is given to the purpose of the psychological report, its focus, style, organization, language, barriers to communication and their resolution, and the relationship of the report to other sources of information. Throughout the text the author refers freely to related studies, integrates their findings, and provides a useful summary of the literature.

The most original contribution in this book is one that should prove especially valuable in training. In his chapter titled "A new way of organizing psychological reports," Klopfer proposes the use of an outline form on legal size paper consisting of rows of boxes, with the names of individual tests administered listed horizontally, and the following rubrics listed vertically: behavior during test; intellectual aspects of the personality; affective aspects of the personality; basic conflict areas; adaptive and maladaptive techniques; diagnostic indicators; prognostic indicators. This has real merit in pointing up consistencies and discrepancies in subjects' test performance and behavior, and the reviewer has found it helpful as a teaching device with interns. A useful addition to the tests listed horizontally would be the interview, the clinician himself being the "projective technique" in this case—perhaps the best "test" of all.

Klopfer makes a strong case for oral presentation of test findings whenever possible, both as a supplement to the written report, and even in some instances in place of it. This permits great flexibility and has many advantages, but perhaps he is overly fearful of being misunderstood and of dire consequences resulting from the referrant's distortions of his written statements. In connection with this, some will take exception to Klopfer's dictum: "Needless to say, no ethical clinical psychologist will ever give copies of his report to the patient or otherwise communicate to him its exact contents" (p. 5). Are our findings always so negative or penetrating as to be traumatic to the

subject? The emphasis in Klopfer's book is on diagnostic evaluations in a psychiatric setting, but the principles would seem to be essentially the same in selection, promotion, or separation procedures in school, industry, or the armed services. Are there not some cases, especially in counseling settings, where it may be helpful for the client to be informed of the "exact contents" of the report?

Throughout the book the author emphasizes the need for clarity and accuracy; the statements made about a person should be valid of him, and not true of everyone. This reviewer says "Amen" to Klopfer's contention that "any statement found in psychological reports could be made comprehensible to any literate individual of at least average intelligence . . . If the clinical psychologist himself really comprehends what he is attempting to communicate, a technical language level is really unnecessary" (p. 58). This point is so well made that it seems a shame to have to indict Klopfer for his use of technical terms in a few of his representative reports included in the appendix. He could be added to the roster of "Our forgetful authors" in *The New Yorker!* How many readers can give an accurate definition of "distanciation," certainly a relatively esoteric term, and incidentally not a defense mechanism, as Klopfer would have it (p. 141). In other reports he uses "impotence" (p. 128), "nurturance" (p 140), both test jargon, and "acting out" (p. 136), employed in an unusually vague way. But these are minor points, and most of the reports serve as useful illustrations.

The problem of relating psychological test findings with other sources of information is given a separate chapter, and shown to be essentially one of integrating data from different levels of behavior and consciousness. Here the need for accurately specifying the level of psychological data reported is clearly pointed up. Klopfer is properly cautious regarding behavior prediction from projective techniques, which may better measure fantasy, and criticizes both psychologists and psychiatrists for frequently neglecting to investigate overt behavior. He points up the obvious, but sometimes forgotten, fact that accurate prediction is only possible when the measure is appropriate, and seems to suggest that the clinical psychologist's armamentarium might include behavioral assessment procedures in the future.

A major problem for most graduate students in clinical psychology is learning how to integrate psychological test data into a meaningful personality picture, and then to communicate their findings effectively to others. *The Psychological Report* should prove to be of great value in training, and is recommended to experienced practitioners as well.

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ANNOUNCEMENTS

WORKSHOPS

Department of Psychology—The University of Chicago—Summer 1961.

TWO WORKSHOP SEMINARS IN THE RORSCHACH TEST

I. *The Foundations.* Basic problems. Administration. Processing the associations. Psychologic significance of the test variables. The whole personality in the Rorschach test. Introduction to interpretation. June 19-23, 1961.

II. *Advanced clinical interpretation.* Treatment and the test: in neurotic disorders in adolescents and adults. The schizophrenic child. Differentiating the organic. The ego's defenses; patient's assets; the treatment goals. June 26-30, 1961.

Doctor S. J. Beck will conduct both seminars. For information write to: Rorschach Workshops, Departments of Psychology, University of Chicago, Chicago 37, Illinois.

The 1961 Annual Workshop in Projective Drawings will be conducted at New York State Psychiatric Institute, N.Y.C., this year by Emanuel F. Hammer, Ph.D. and Selma Landisberg, M.A., on July 24-27, from 10:00-12:00 and 1:30-3:00 daily.

The Clinical Application of Projective Drawings, Charles Thomas, Publisher, East Lawrence Avenue, Springfield, Illinois, is recommended as advanced preparation for the Workshop. For information as to admission, fees or requirements, write to Selma Landisberg, 116 East 35th St., New York City.

BOOKS AVAILABLE FOR REVIEW

The following books are available for review. If you wish to write a review, please contact the executive editor.

Hiltmann, H. Kompendium der psychodiagnostischen Tests.

Nunnally, J. C. Popular conceptions of mental health.

Peck, R. F. & Havighurst, R. J. Psychology of character development.

Rickers-Ovsiankina, M. A. Rorschach Psychology.

Symonds, P. M. & Jensen, A. R. From adolescent to adult.

Leblanc, M. Personnalite de la femme Katangaise. (TAT and sentence completion methods).

Carr, A. C., Forer, B. R., Henry, W. E., Hooker, E., Hutt, M. L., Piotrowski, Z. A. The prediction of overt behavior through the use of projective techniques.

Wylie, Ruth C. The self concept.

Kaplan, B. (ed.) Studying personality cross-culturally.

Fein, Leah G. The Three-Dimensional Personality Test.

DIRECTORY OF MEMBERS OF THE SOCIETY FOR PROJECTIVE TECHNIQUES AS OF MARCH 1, 1960

Date preceded by F indicates date elected as Fellow
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Stanford, Conn. H.F. 1961

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Philadelphia 3, Pa. F 1951

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89-38 Whitney Avenue A 1953
Elmhurst 73, L. I., N. Y.

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Verona, Pa. A 1953

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Forer, Bertram R.
Forer, Lucille K.
Frostig, Marianne
Grayson, Harry
Hays, Berta
Hooker, Evelyn
Howard, Stephen J.
Kay, Mrs. Victor
Knapp, Pearl G.
Korot, Leonard
Lakin, Harriet A.
Lucas, Winafred
Manson, Morse P.
Marsh, James
McDonald, Franklin R.
Meyer, Mortimer M.
Miller, Cecil R.
Mindess, Harvey
Pellat, Marjorie
Rapkin, Maurice
Risch, Frank
Rose, Nicholas
Russell, Howard
Salzman, Anne
Shneidman, Edwin S.
Sommers, Vita Stein
Stendel, Kathleen
Stewart, Barbara M.
Stone, Harold
Troup, Evelyn

Oakland
Davison, Arthur H.
Due, Floyd O.
Elliott, Merle H.

Palo Alto
Krasner, Leonard
Ullmann, Leonard

Palos Verdes Estates
Holt, James
Struthers, Alice Ball

Pasadena
Diamond, Florence
Korda, Geraldine J.
Marsh, Donald
Price, Marian
Reitzell, Jeanne M.
Snowden, Robert F.

San Bernardino
Peak, Horace M.
Plittman, Jack C.

San Diego
Davenport, Beverly
Heisler, Verda
Lockwood, Wallace V.
Parsons, Rosa F.
Stone, Irving R.
Treat, Wolcott C.

San Francisco
Berliner, Hildegarde
Frankel, Esther
Harris, Robert E.
Kalis, Betty Lee
Korner, Anneliese F.
Meyer, George
Northcott, Hollie
Sanderson, Herbert
Whitsell, Leon

San Jose
Levy, Ruth J.
Mehr, Helen Margulies
Muench, George

San Rafael
Bergstrom-Borland, Ingrid
Weinstein, Marvin

Santa Monica
Baker, Gertrude
Sheehan, Joseph

Sherman Oaks
Pottharst, Karl
Reisel, Jerome

Whittier
White, Helen Cecelia
Zimmerman, Irla Lee

Woodland Hills
Cartwright, Robert W.
Reitz, Edna M.

COLORADO

Denver
Billings, Edward G.
Fehrenbach, Alice R.
Kahn, Marvin
Mahrer, Alvin
Rogers, Lawrence S.
Rymer, Charles A.

CONNECTICUT

Barbara, Peter Paul
Fein, Leah
Hemmendinger, Larry
Holmes, Frances B.
Holzberg, Jules D.
Molish, Herman
Nicholas, Alma L.
Rickers-Ovsiankina, Maria
Zeichner, Abraham

Bridgeport
Fine, Harold J.
Rosner, Stanley

New Haven
Ames, Louise Bates
Hellersberg, Elizabeth
Klatskin, Ethelyn H.
Schafer, Roy
Zimet, Carl N.

DELAWARE

Holanchock, George

Wilmington
Blessing, Harold D.
Grossman, Searles
Stonesifer, Fred
Weiss, Sheldon
Williams, Helen E.

FLORIDA

Brodie, Dorothy B.
Flemming, Edward
Gessner, Alan
Gibson, Robert L.
Radtke, William
Seiler, Geraldine
Simkins, Lawrence
Stotz, Marion

Coral Gables
Chavkin, Albert
Lesser, Erwin
Spirer, Jess

Gainesville
Guertin, Wilson H.
Harlow, Justin
Schumaker, Audrey S.
Schumaker, Henry C.

Miami
Allen, Robert M.
Eber, Martin
Karson, Samuel
Kushner, Malcolm
Marquit, Sybil

Sarasota
Kelsey, Howard
Van Alstyne, Dorothy

Tampa
Blau, Theo.
Schaffer, Robert E.

GEORGIA
Hughes, Robert M.
Kaplan, Norman
Sisson, Boyd

HAWAII

Honolulu
Dean, Sidney I.
Halperin, Sidney I

ILLINOIS
Barrell, Robt. P.
Klass, Walter K.
Leiden, Irving
Neuman, Gerald G.
Shulman, Harold
Tabin, J. K.
Thornton, Thomas E.
Verrill, Bernard

Chicago
Altman, Charlotte H.
Beck, Samuel J.
Bernstein, Hilde R.
Farley, Jane
Fromm, Erika O.
Handel, Gerald
Henry, William E.
Levy, Sidney J.
Lundin, William
McFarland, Robert L.
Moore, Harriet Bruce
Rainwater, Lee
Rosenthal, Vin
Somerville, Addison
Swift, Joan Woodcock
Vassiliou, Mrs. Vasso

Evanston
Hilkevitch, Rhea R.
Krout, Maurice H.
Stavrianos, Bertha
Vayhinger, John M.

INDIANA
Exner, John
Schmalzried, Newell

Indianapolis
Graves, Winifred S.
Lewisohn, Peter M.
Phillips, Allvertta
Stoops, Wanda Rah

Lafayette
Baker, Lawrence M.
Weisskopf-Joelson, Edith

IOWA
Dingman, Paul R.
Kramish, Art
Low, Howard
Pena, Cesareo D.

KANSAS
Mueller, Adolph R.

Lawrence
Kaplin, Bert
Wright, M. Erik

Topeka
Burdick, Jeanne
Krall, Vita
Mayman, Martin
Murphy, Lois Barclay

KENTUCKY
Johnson, Elizabeth

Louisville
Klinger, Marjorie
Vandenberg, Steven G.

LOUISIANA

New Orleans
Crovetto, Lorraine
Font, Marion McKenzie
Fosberg, Irving A.
Odom, Charles L.
Richards, T. W.

MAINE
Doak, Mrs. James
Tyrrel, Mrs. Marcel
Waller, Patricia

MARYLAND

Abrams, Julian
Finn, Michael
Groff, Marne L.
Isaacs, Mark
Kendig, Isabelle V.
Lyon, W. B.
Raifman, Irving
Wilkins, Verna M.

Baltimore
Ainsworth, Mary
Feldberg, Theodore M
Hawkins, Hermione

Bethesda
Hoch, Erasmus L.
Little, Kenneth B.
Mindlin, Dorothee F.
Saltzman, Sara

Catonsville
Imre, Paul
Shah, Saleem A.

MASSACHUSETTS

Evans, John T.
Friend, Jeannette G.
Kates, Solis L.
Stanton, Harriet

Belmont
Frank, L. K.
Wells, Frederic

Boston
Everett, Evalyn G.
Gilbert, Raymond R.
Halpern, Esther

Cambridge
Mierzwa, John
Murray, Henry
Roe, Anne
Schaw, Louis C.

Northhampton
Scherer, I. W.
Tallent, Norman

Stockbridge
Harris, Robert A.
Philip, Anthony
Rapaport, David
Shapiro, David

Worcester
Lebeaux, Thelma
Philips, Leslie

MICHIGAN

Brownfain, John J.
Capell, Martin D.
Guy, William
Klein, Louis
Leonard, A. T.
MacBride, John L.
Walton, Norma R.
Warren, Lurene Z.

Ann Arbor
Blum, Gerald
Hand, Mary Ella
Hutt, Max L.
Schneider, Stanley F.
Wyatt, Frederick

Birmingham
Briskin, Gerald
Williams, Gertha

Detroit
Barahal, George D.
Eglash, Evelyn
Feinberg, Henry
Longley, James L.
Mather, Elise D.
Mathews, W. Mason
Milstein, A. Freda

East Lansing
Haworth, Mary R.
Rabin, Albert

Kalamazoo
McPherson, Marion W.
Popplestone, John

Pontiac
Yang, Andrew T.
Zamorski, Emil J.

MINNESOTA

Lindzey, Gardner
Rotman, Saul
Selzer, Samuel

Minneapolis
Rosen, Ephraim
Sulzer, Edward S.

St. Paul
Dorken, Herbert, Jr.
Herness, Christina
Scher, Sam C.

MISSISSIPPI

Murray, David

MISSOURI

Geil, George A.
Hilden, Arnold H.
Ossorio, Abel Garcia
Rook, Leroy
Waters, Thomas J.

St. Louis
Barclay, Allen
Estrada, Carol
L'Abate, Luciano

MONTANA

Wilson, Helen

NEBRASKA

Garfield, S. L.
Weiss, Bertram

Lincoln
Donoghue, John
Levine, David
Taulbee, Earl S.

Norfolk
Hillson, Joseph
Pesetsky, Fred
Wylie, Alexander

NEVADA

Dowlen, Caroline
Magnette, Jules

NEW HAMPSHIRE

King, Francis W.

Manchester
Harmes, John
St. Clair, Walter F.

NEW JERSEY

Bosner, Jane Potter
Fabrikant, Benjamin
Feldman, Irving
Frey, Harriet K.
Gasorek, Kathryn
Goodman, Morris
Greenstein, Jules
Kaufman, Bette
Krass, Alvin
Lawrenson, Thomas
Liutkus, Stanley
Morrow, J. Lloyd
Parnicky, Joseph J.
Roa-Che, Miriam
Selig, Kalman

East Orange
Abramson, Leonard
Rockberger, Harry
Tomblen, Donald

Englewood
Brody, Claire
Cohn, Ruth C.
Junken, Elizabeth
Lieben, Beatrice

Maplewood
Kutash, Samuel B.
Peckarsky, Adeline K.

Newark
Guze, Vivian
Steiner, Matilda

Princeton
Phillips, Maurice
Tomkins, Silvan S.

Trenton
Clark, W. Donald
David, Henry P.
Lyles, William

Upper Montclair
Brower, Daniel
Brower, Judith

NEW MEXICO

Fortier, Robert

Gallup
Mariani, Eugene
Mariani, Rose

NEW YORK

Abel, Theodora M.
Amchin, Abraham
Appell, Melville
Barringer, Benton E.
Bernstein, Mildred
Braun, Roslyn
Chamberlain, Allan
De Martino, Hugo
Eron, Leonard D.
Friedman, Howard
Goodman, Mrs. Beverly
Gurvich, Bernice M.
Hirning, L. C.
Hirsch, Janet F.
Jacobs, Martin
Johnson, Richard B.
Kaplan, Herbert
Kass, Walter
Kissinger, R. David
Klein, Beatrice
Kornreich, Melvin
Kornrich, Milton
Krinsky, Leonard
Lampl, Henry
Levine, Abraham
Levine, Harold
Levinson, Boris M.
MacCasland, Mrs. Barbara
Margolis, Muriel
Napoli, Peter J.
Puzzo, Frank S.
Reswick, Serena
Seltzer, Samuel M.
Sharpe, Susie
Sobol, Albert L.
Wells, Hall M.
Wertheimer, Rita
Williamson, Margaret
Wilson, Mary T.

Astoria
Holodnak, Helen
Stern, Kathryn

Bronx
Antwarg, Alex
D'Angelo, Rita
Goodman, Paya
Harris, William W.
Laskowitz, David
Springer, Florence E.
Teich, Marianne

Brooklyn
Abrams, Elias N.
Anderson, Helen Joan
Berrick, Myron
Dick, Frances
Hinds, Edith A.
Jortner, Sidney
Kavkewitz, Henry
Klein, Milton
Levinger, Leah
Lolis, Kathleen
Parker, Rolland
Seitzman, Daniel
Siegel, Max
Silverstein, Sophie M.
Spin, Lillian
Sternberg, David
Weiss, Herman R.

Wood, Austin B.
Zeev, Bracha

Buffalo
Fischer, L. K.
Schubert, Herman
Wagner, Mazie E.

Elmhurst
Rosenberg, Israel H.
Steiner, Meta
Zierer, Ernest

Flushing
Davidson, Alene
Harris, Albert J.
Leopold, Julius
Spaney, Emma

Forest Hills
Moroson, Gloria
Munz, Adam
Vaccaro, J. John

Garden City
Derner, Gordon
Frisch, Paul

Great Neck
Gurvitz, Milton S.
Wald, Charles

Hartsdale
Gillman, Etta C.
Moreland, Margaret
Singer, Erwin
Wilensky, Harold

Jackson Heights
Fuchs, Arnold
Kitay, Philip
Lee, Dorothy
Soll, Jerome

Larchmont
Abt, Lawrence Edwin
Beisel, Lillie B.

New Rochelle
Bruce, Martin
Schacht, Leatrice
Wexler, Rochelle

New York City
Ackerman, Bernard
Alozery, Jessica Jervis
Aronson, Marvin L.
Asher, Miriam
Auerbach, Aline B.
Balken, Eva Ruth
Baron, Samuel
Bartlett, Doris A.
Bellak, Leopold
Beran, Marianne
Bondel, Gertrude
Bourke, William T.
Brown, Fred
Bry, Mae G.
Burchard, Edward M. L.
Burgemeister, Bessie B.
Calabresi, Renata
Caligor, Leopold
Carr, Arthur C.
Carroll, Clara
Chu, Thomas W.
Cohen, Mathilde Weill
Cowin, Marion
Davidson, Helen H.
Deri, Susan K.
Ellis, Albert
Epstein, Hans L.
Faterson, Hanna F.
Feuerburgh, Joseph
Fine, Reuben
Fisher, Emanuel
Fuchsman, Seymour
Gaudet, F. Louise
Gaudet, Frederick J.
Getoff, Louis
Ginandes, Janet
Glass, Blanche
Goldberger, Leo
Golden, Doris
Goldfarb, William
Gondor, Lily H.
Gordon, Thelma
Gottlieb, Sophie
Greene, Janet S.
Greenstadt, William
Gundlach, Ralph
Haber, William B.
Halpern, Florence
Hammer, Emanuel
Harris, June
Harrower, Molly R.
Hertzman, Max
Horn, Daniel
Huber, Jack
Jahoda, Hedwig
Joseph, Alice
Kadis, Asya
Kahn, David
Kalinkowitz, Bernard N.
Kapit, Milton E.
Kaplan, Donald M.
Katz, Florine
Kaufmann, Elizabeth M.
Kemple, Camilla
Kew, Clifton
Klein, Abraham
Klein, Eva L.
Krafft, Margaret R.
Krugman, Dorothy C.
Krugman, Herbert E.
Lachmann, Frank M.
Landis, Bernard
Landisberg, Selma
Lawrence, James F.
Leder, Ruth
Lehrer, Ruth
Lesser, Gerald
Levi, Joseph
Lieberman, Janet
Mann, Edna
Markham, Sylvia
McCully, Robert
McNeill, Harry V.
Miale, Florence
Michal-Smith, Harold
Mills, David H.
Mullen, Esther
Munroe, Ruth
Ochroch, Ruth
Palm, Rose
Paulsen, Alma
Peck, Rosalind
Porter, Lucille
Proctor, Paul W.
Reens, Mrs. Renee
Ritey, Hector J.
Rodan, Henrietta Itta
Roland, Alan O.
Rose, Margaret E.
Rothenberg, Eleanor
Sabath, Gerald
Sander, Emilie T.
Scales, Margaret B.
Schachtel, Ernest G.
Schachtel, Zeborah
Schattman, Esther Preger
Schillinger, Morton
Schon, Martha
Schonbar, Rosalea Ann
Schwartz, Arthur A.
Schwartz, Emanuel K.
Sherman, Murray H.
Shor, Joel
Siegel, Miriam G.
Silverman, Lloyd
Sosnoff, Miriam
Stein, Morris I.
Steinzor, Bernard
Teicher, Arthur
Thetford, William
Tolmach, Regina E.
Topping, Marian Powers
Tripp, Clarence A.
Valerius, Elizabeth
Van West, Joan
Vorhaus, David
Vorhaus, Pauline G.
Warner, Samuel J.
Wentworth-Rohr, Ivan
Werner, Henry
Wolf, S. Jean
Wolfson, Ruth
Woltmann, Adolf G.
Wray, Beulah K.
Zucker, Luise J.

Poughkeepsie
Sanforth, Nevitt
Stone, L. Joseph

Rhinebeck
Cohn, Frederick
Colvin, Ralph
Wagner, Nathaniel

Syracuse
Murray, David
Orgel, Sidney
Siegel, Edward

Tomkins Cove
Krugman, Judith I.
Krugman, Morris

Wantagh
Levenstein, Phyllis
Trachtman, Gilbert

White Plains
Brody, Abraham
Brody, Gertrude

NORTH CAROLINA

Grassi, Joseph
Reichenberg-Hackett, Wally
Wengate, Pauline

Chapel Hill
Baughman, Emmett
Rader, Gordon E.

NORTH DAKOTA

Craddick, Ray
Kovnar, Murray

OHIO

Allen, Doris Twitchell
Baker, Corinne F.
Koons, Paul B.
Lochrke, Leah M.
Murphy, Rev. Kenneth
Rosenthal, Robert
Schwerin, Erna

Cincinnati
Bieliauskas, Vytautas J.
Graham, Virginia T.
Levy, Joshua
Ross, W. Donald
Strauss, Elsa L.
Whitman, Dorothy
Whitman, Roy M.

Cleveland
Alexander, William A.
Barkley, Bill J.
Grier, Mary E.
Nosal, Walter
Paolino, Albert
Ritz, George H., Jr.
Wilcott, Johanna

Dayton
Bowers, Scott T.
Davis, John A.
Gallico, Margaret
Mendenhall, John

Pepper Pike
Friedman, Gladys
Friedman, Ira

Shaker Heights
Hertz, Marguerite R.
Warshawsky, Florence

OKLAHOMA

Motz, Gerald

Norman
Marx, Alfred
Temerlin, Maurice

OREGON

Berliner, Anna
Furchner, Robert

Portland
Ciccarello, Jennie
David, Charlotte
Hansen, Irvin

Higginson, Gordon K.
Klopfer, Walter G.
McGreevey, James
Murstein, Bernard
Reed, Max
Scott, Edward M.

PENNSYLVANIA

Abrams, Ray H.
Bernstein, Louis
Bricklin, Patricia
Brunschwig, Lily
Cease, Eugene
Glauss, Helen
Cox, Rachel D.
Cummings, C. Peter
Dominguez, Kathryn
Dougherty, Margaret
Frear, Edgar
Hallow, William C.
Heath, Douglas H.
Hocker, Margaret
Johnson, Thomas
Kessler, Mable G.
Kidorf, Irwin W.
Levit, Herbert
McGee, Mrs. B. F.
Morris, Charles M.
Orr, David
Painting, Donald H.
Phillips, John C.
Platt, Henry
Rappaport, Sidney
Raub, Edwin S.
Ruhl, Mrs. R. Ernest
Schulman, Irving
Singer, Roland H.
Smolinsky, Harold J.
Strait, Bennett
Taylor, Verda
Weiss, Emalyn R.

Bryn Mawr
Beatty, Eleanor
McBride, Katherine

Elkins Park
Felzer, Stanton B.
Linzer, Mrs. Lita

Media
Jeffries, Helen
Morgan, Clellan L.
Morgan, Olive J.

Merion
Rappaport, Sheldon
Sless, Bernard

Norristown
Alexander, Herbert M.
Kleban, Morton
Ross, M. Eleanor

Philadelphia
Abrams, Jules C.
Baron, Louis K.
Blumstein, Molly G.
Cantarow, Elizabeth S.
Copel, Sidney L.
Cunningham, Cornelia
Framo, James
Goodnick, Benjamin
Hallowell, A. Irving
Hallowell, Dorothy K.
Howland, Allan
Kleinberg, Rosalyn K.
Lit, Jack
Marker, Beatrice W.
Osterweil, Jerry
Peters, Marie Wilson
Piotrowski, Z. A.
Ridge, Bradley B.
Rosen, Esther Katz
Saltzman, Marguerite R.
Steisel, Ira M.
Tuft, Carlyn M.

Pittsburgh
Arnaud, Sara H.
Barry, John
Brosin, Henry W.
Feldman, Dorothy A.
Goldbloom, Betty
Lazovik, David A.
Ledwith, Nettie H.
Lepson, David
Lonstein, Murray
Newman, Joseph
Reis, Walter J.
Rivers, Mrs. Hubert M.
Ross, Alan O.
Schanberger, William
Shipman, William G.
Yadoff, Bernard

West Chester
Charny, Israel W.
Freschi, Vincent J.

Wilkes-Barre
Fry, Franklyn
Fry, Martha

RHODE ISLAND

Carpenter, Kenneth E.
Musiker, Harold

Providence
Davids, Anthony
DeVault, Barbara

TENNESSEE

Nashville
Atchison, Calvin
Billig, Otto
Kirk, Virginia

TEXAS

Goolishian, Harold
Hamilton, Sidney F.
Kramer, George
Martin, Harry
Robinowitz, Ralph

Austin
Holtzman, Wayne
Mims, Jean Giesey

Dallas
Crasilneck, Harold B.
Gladfelter, John
Michael, Carmen Miller
Siegel, Joseph
Winer, Harold

Ft. Worth
Foster, Austin
Wickersham, Francis

Galveston
Gaston, Charles
MacGregor, Robert

Houston
McCary, James L.
Morrison, Alfonso
Vinson, David
Yeager, Marion B.

UTAH

Bramwell, Paul

VERMONT

Eldred, Donald M.
Kotkov, Benjamin
Townsend, Marjorie M.

VIRGINIA

Colm, Hanna
Gersten, Rev. Charles
Horlick, Reuben S.
Reiss, William J.

Charlottesville
Bachrach, Arthur J.
Carter, Linda Louise

Richmond
Adams, Henry B.
Caro, Elizabeth R.
Diana, Pearl B.

WASHINGTON

Conant, James C.
Messerschmidt, Ramona

Seattle
Bogardus, Helen
Schmidl, Fritz
Skeels, Dell

WEST VIRGINIA

Dana, Richard H.
Mock, Joe F.
Spencer, Betty L.

WISCONSIN

Filmer-Bennett, Gordon

Madison
Mathias, Rudolf
Robinson, Elizabeth Foster
Smith, Margaret

DISTRICT OF COLUMBIA

Washington
Beardsley, Katherine
Broomhead, Elizabeth
Gravitz, Melvin
Ives, Margaret
Mercer, Margaret
Peixotto, Helen
Seidenfeld, Morton
Stirling, Elizabeth
Woolf, Henrietta

FOREIGN COUNTRIES

ARGENTINA

Schlesinger, Alicia de

AUSTRALIA

Cook, Philip H.

AUSTRIA

Forrest, Carol W.
Schoenhorn, Elizabeth

BRAZIL

Lopes, Jose Leme
Ribeiro, Rene

CANADA

Clerk, Gabrielle Brunet
Ferguson, Kingsley
Francoeur, Thomas A.
Howard, J. W.
Leves, Archie
Manuge, Mrs. Robt.
O'Reilly, P. Oliver
Record, Fr. Maurice
Spindler, Joan Elizabeth
Spires, Alan
Wright, Morgan

Montreal
Azima, Fern
Beauchemin, Jean M.
Calvert, Margaret
Coughlin, Anne
Dudek, Stephanie
Greenberg, Nathan
Guindon, Jeannine
Hebert, Bernard
Kral, V. Adalbert
Lehmann, Heinz
Malloy, Helga
Morf, Gustav
Poser, Ernest George
Wigdor, Blossom

Toronto
Carson, Marjorie
Levinson, Mrs. Toby

COLUMBIA

Estrada, Carol

Bogota
Convers, Josefina
Gaviria, Alvaro

Rodriquez-Valderrama, **Jose**
Wilde, Guido
Zachmann, Esther

CUBA
Lasaga, Jose

ENGLAND
Williams, Jessie M.
London
Alcock, A. Theodora
Phillipson, H.

FRANCE
Cottes, Mlle. S.
Morize, Mrs. Andre
Schachter, M.

GERMANY
Bene, Eva
Hiltmann, Hildegard
Vogel, Horst

INDIA
Tayal, Shanti

ISRAEL
Guiora, A. Zeev
Tel Aviv
Akavia, Uriel
Elizur, Abraham
Kadinsky, D.

ITALY
Ferracuti, **Franco**

JAPAN
Hoshino, Akira
Kataguchi, Yasufumi
Tada, Haruo
Tanaka, Fujio

MEXICO
Nunez, Rafael

PERU
Sanchez-Garcia, **Jose**

PUERTO RICO
Dieppa, Jorge J.
Umpierre, Francisco

SCOTLAND
Smith, **James Innes**

SWITZERLAND
Crevis, Gerd M.
Klurfeld, Georges
Rorschach, Olga